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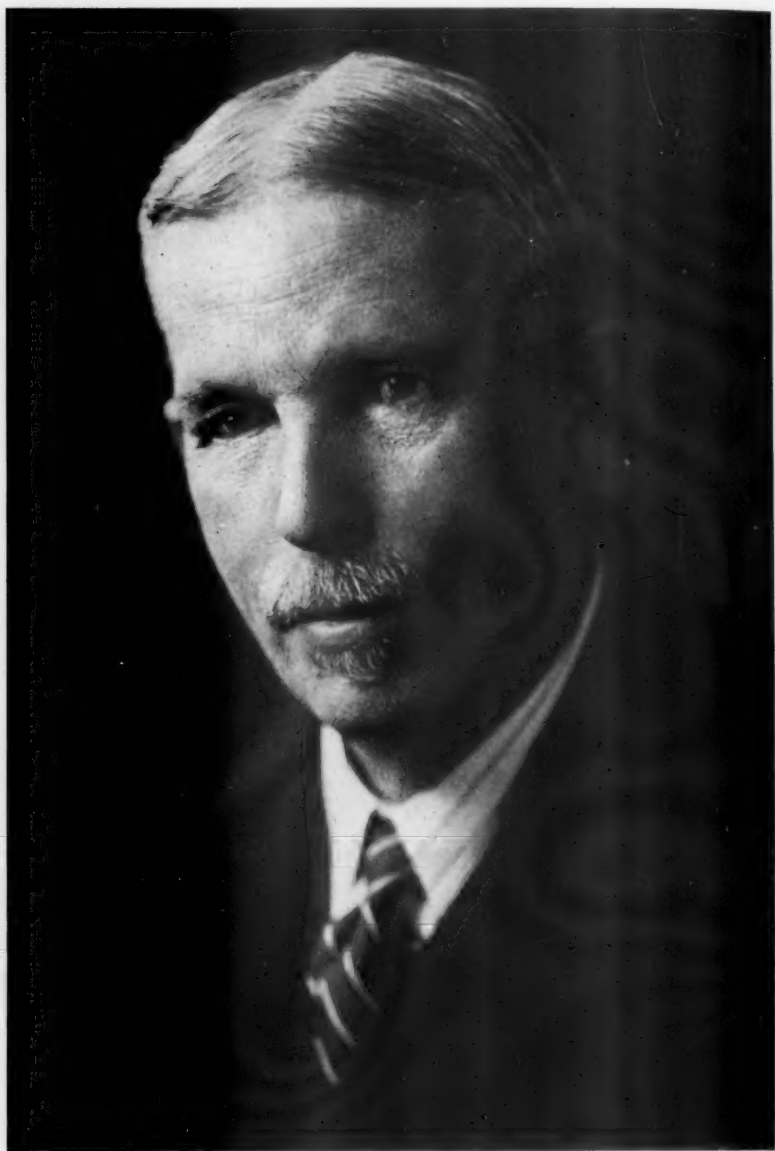
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W. C. English

AMERICAN JOURNAL OF PSYCHIATRY

PRESIDENTIAL ADDRESS.*

THE FEEBLE-MINDED PROBLEM.

BY WALTER M. ENGLISH, M.D., BROCKVILLE, ONTARIO.

Fellows, Members, Ladies and Gentlemen:

Again I wish to thank you most sincerely for the very great honor done me in Washington last year in choosing me as your President—the fifth Canadian in 87 years. It is the highest and most valued recognition with which I have been favored in my many years of medical service.

It was with considerable trepidation that I faced the matter of choosing a subject for the annual address, the selection of which is the constant worry of every presiding officer of this and other scientific associations; and I trust that the matter to be briefly discussed may be of some general interest.

Feeble-mindedness, which is increasing alarmingly in all civilized countries, demands our most careful and intensive study as to its causes and the means that should be adopted to check its inroads and lessen its influence on business and social life.

Dr. Ray L. Wilbur very aptly put it in his address on "Mental Health as a National Problem," when he said:¹

There is little that can be done about heredity after life has once started. There is much that might be done if intelligence rather than emotions controlled the quality of the oncoming race.

A review of the latest reports regarding the mental defective population in England, United States and Canada shows, in that of the Board of Control of England of January 1, 1928,² that they had

* Delivered at the eighty-seventh annual meeting of the American Psychiatric Association, Toronto, Canada, June 1-5, 1931.

¹ Journal of the A. M. A., March 3, 1931, p. 994.

² Report of Mental Deficiency Commission, 1929, part 3, p. 99.

314,000 mental defectives of all ages and grades; *i. e.*, 10 out of every 1000 were aments.

Those of the United States show³ that one-half of 1 per cent, or 600,000 of the population have a mentality below seven years, *i. e.*, they are feeble-minded, and will thus demand supervision and care throughout their natural lives; while a further 1 per cent, or 1,200,000, show a mentality of seven to nine years; *i. e.*, their intelligence quotient is 75 per cent or lower and they are thus also rated below par or feeble-minded.

In Canada, latest reports, which are rather incomplete, show 27,620 aments. There is overwhelming evidence to prove that the great majority of cases of mental disease have one thing in common, they are the result of heredity; *i. e.*, the cerebral mechanism is unstable and subject to rapid changes, but the individual does not necessarily show the same psychosis as the parent. Tredgold states:⁴

What is inherited and what is transmitted is some peculiarity which strongly predisposes to these mental abnormalities . . . since the germ abnormality is a qualitative and not a quantitative one, it cannot be demonstrated by the microscope.

Inheritance and environment are the two factors which influence the development of the individual. The bases of inheritance are the germ and sperm cells which contain elements which govern the multiplication, arrangement and structure of the body cells in such a way as to produce the various organs. The vitality of the developed organs may be lessened and impaired by toxins that may be present in the system of the parents and thus the neurones, which are the last structures of the brain to be developed, may be profoundly and injuriously affected and their functional powers will thus prove deficient.

Lewis,⁵ in his investigations, found that in every 100 aments there were 5 idiots, 20 imbeciles and 75 feeble-minded and Tredgold also gives an almost similar analysis. The view of Tredgold, Davenport and Goddard is that in aments of all ages 80 per cent are the products of impaired sperm and germ cells, and that in the remaining 20 per cent there is no germ impairment, but the normal growth

³ Gosney and Popenoe: "Sterilization for Human Betterment," p. VI.

⁴ Tredgold: "Mott Memorial, '29," p. 121.

⁵ Report of Mental Deficiency Commission, England, part 4, p. 29.

of the brain has been interfered with or arrested by some adverse condition during development and thus the impairment is permanent and incurable.

Two of the accepted laws of transmission are :*

1. The mating of two individuals of neuropathic tendency gives offspring with definite tendency to mental defect.
2. The mating of two mentally defective individuals yields offspring who are all defective.

As to increase of mental defective population, we find that in England in 1906[†] the ratio of feeble-minded was 4.02 per 1000; by 1926 it had increased to 8 per 1000; *i. e.*, there was approximately an increase of 100 per cent, while the general population increase was only 14 per cent. Also, Sir George Newman says :*

This group is unable to respond with proper benefit to our educational system and adds 50,000 recruits to our industrial army every year who are not only unprepared, by mental retardation, to meet effectively demands of full life, but who furnish society with the bulk of its inefficient adults—criminals, paupers, mendicants and unemployables.

The remedy to be adopted is the prevention of reproduction by *segregation* for at least the whole child-bearing period—say 30 years—with careful oversight, education and industrial training; or *sterilization*.

As to segregation: according to the report of the United States Bureau of Census of 1923,[‡] provision was available for segregating only 8 per cent of this class. Furthermore, in England, the Commissioner of the Board of Control, January 1, 1926,[§] stated that there were 163,000 mental defectives in England and Wales with accommodation to segregate only 53,666.

Taking New York State—one of the most advanced in caring for its mentally deficient—for example, we find that in 1920 the institutions in Newark, Rome, Syracuse, Letchworth Village and Randall's Island, provided 5296 beds which, by June 30, 1928, had been increased in number to 7500 with an additional 500 for defective delinquents at Naponoch, while there were still 40,000 aments

* Tredgold: Mental Deficiency, 5th Edition, p. 32.

† Report of Mental Deficiency Commission, 1929, Part 4.

‡ Newman: "The Health of the School Child."

§ Davies: "Social Control of the Mentally Deficient," p. 129.

|| Board of Control Report, January 1, 1926.

at large, the majority of whom, for the public good as well as their own safety, should be under close surveillance. The cost of caring for segregated cases is, according to the 1923 United States Census, from \$300.00 to \$714.29 annually per capita, the latter figure applying in Mississippi.

A commission appointed by the State of Ohio some few years¹¹ ago, after an exhaustive and painstaking investigation, showed that the civilized world was paying \$5,000,000,000 per year for the care of its mental defectives.

The Committee for Legalizing Sterilization in England, in their recent report said:¹²

It is obvious to-day that procreation is only a national service when the individuals procreated are capable of being socially useful. When they are socially burdensome and have to be supported out of the pockets of the useful, their procreation is a grave disservice against which the community should be protected by suitable provisions of the law.

Having these several points in mind, we must conclude that it is impossible to procure sufficient funds in any of our states or provinces to adequately meet our requirements in caring for these unfortunates. What more ready and feasible plan could then be adopted to aid us in the matter than selective or eugenic sterilization?—a safe and effective treatment and one that does not deprive the individual of any organ, secretion or hormone, nor the indulgence of normal passions.

I will quote in part the sterilization law of California, which is to a considerable extent the basis of that of 23 additional states and of Alberta, Canada.

The law permitting sterilization in California State Institutions was first passed by the legislature in April, 1909, this original law having been changed in June, 1913, and again amended in May, 1917, to read as follows:

SECTION 1. Before any person who has been lawfully committed to any such hospital for the insane, or who has been an inmate of the Sonoma State Home and who is afflicted with mental disease which may have been inherited and is likely to be transmitted to descendants, the various grades of feeble-mindedness, those suffering from perversion or marked departures from normal mentality or from disease of a syphilitic nature, shall be released or discharged therefrom, the State Commission in Lunacy may in its discretion, after a careful investigation of all the circumstances of the case,

¹¹ Gosney and Popenoe: "Sterilization for Human Betterment," p. VIII.

¹² Eugenics Society, 20 Grosvenor Gardens, London, S. W. I.

cause such person to be asexualized, and such asexualization whether with or without the consent of the patient, shall be lawful and shall not render the said commission, its members or any person participating in the operation liable either civilly or criminally.

SEC. 2. Whenever, in the opinion of the resident physician of any state prison, it will be beneficial and conducive to the benefit of the physical, mental or moral condition of any recidivist lawfully confined in such state prison, to be asexualized, then such physician shall call in consultation the general superintendent of state hospitals and the secretary of the state board of health, and they shall jointly examine into the particulars of the case with the said resident physician, and if in their opinion or in the opinion of any two of them, asexualization will be beneficial to such recidivist, they may perform the same; *provided*, that such operation shall not be performed unless the said recidivist has been committed to a state prison in this or some other state or country at least two times for rape, assault with intent to commit rape, or seduction, or at least three times for any other crime or crimes, and shall have given evidence while an inmate of a state prison in this state that he is a moral or sexual degenerate or pervert; and *provided, further*, that in the case of convicts sentenced to the state prison for life, who exhibit continued evidence of moral and sexual depravity, the right to asexualize them as provided in this section, shall apply whether they have been inmates of a state prison in this or any other country or state more than one time or not; *provided, further*, that nothing in this act shall apply to or refer to any voluntary patient confined or kept in any state hospital of this state.

SEC. 3. Any idiot, if a minor, may be asexualized by or under the direction of the medical superintendent of any state hospital with the written consent of his or her parents or guardian, and if an adult, then with the written consent of his or her lawfully appointed guardian, and upon the written request of the parent or guardian of any such idiot or fool, the superintendent of any state hospital shall perform such operation or cause the same to be performed without charge therefor.

The Penal Code of the State of California also provides as follows:

645. Whenever any person shall be adjudged guilty of carnal abuse of a female person under the age of 10 years, the court may, in addition to such other punishment or confinement as may be imposed, direct an operation to be performed upon such person, for the prevention of procreation.

EXTRACT FROM STATUTES OF ALBERTA, CANADA, 18 GEO. V., 1928.

CHAPTER 37. *The Sexual Sterilization Act* (Assented to March 21, 1928). His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Alberta, enacts as follows:

1. This act may be cited as "*The Sexual Sterilization Act*."

2. In this act, unless the context otherwise requires:

(a) "Mental Hospital" shall mean a hospital within the meaning of *The Mental Diseases Act*;

(b) "Minister" shall mean the Minister of Health.

3. (1) For the purpose of this Act, a Board is hereby created, which shall consist of the following four persons:

Dr. E. Pope, Edmonton.

Dr. E. G. Mason, Calgary.

Dr. J. M. McEachran, Edmonton.

Mrs. Jean H. Field, Kinuso.

(2) The successors of the said members of the Board shall, from time to time, be appointed by the Lieutenant-Governor in Council, but two of the said Board shall be medical practitioners nominated by the Senate of the University of Alberta and the Council of the College of Physicians respectively, and two shall be persons other than medical practitioners, appointed by the Lieutenant-Governor in Council.

4. When it is proposed to discharge any inmates of a mental hospital, the medical superintendent or other officer in charge thereof may cause such inmate to be examined by or in the presence of the board of examiners.

5. If upon such examination, the Board is unanimously of opinion that the patient might safely be discharged if the danger of procreation, with its attendant risk of multiplication of the evil by transmission of the disability to progeny were eliminated, the Board may direct in writing such surgical operation for sexual sterilization of the inmate as may be specified in the written direction and shall appoint some competent surgeon to perform the operation.

6. Such operation shall not be performed unless the inmate, if in the opinion of the Board he is capable of giving consent, has consented thereto, or where the Board is of opinion that the inmate is not capable of giving such consent, the husband or wife of the inmate or the parent or guardian of the inmate if he is unmarried, has consented thereto, or where the inmate has no husband, wife, parent or guardian resident in the province, the Minister has consented thereto.

7. No surgeon duly directed to perform any such operation shall be liable to any civil action whatsoever by reason of the performance thereof.

8. This act shall have effect only insofar as the legislative authority of the province extends.

Again, the Committee for Legalizing Eugenic Sterilization says:¹³

The wisest thing that society can do in its own interests, and also the kindest thing which it can do to defectives, is to prevent their coming into existence.

This committee does not think that sterilization is a panacea by which defectiveness can be completely eliminated from the community in a short time.

¹³ Report, Eugenic Society, 20 Grosvenor Gardens, London, S. W. I., England.

The legality of the several state acts allowing sterilization, after careful examination and authorization by competent and duly appointed officers, has been questioned and brought before the Supreme Court of the United States and on May 2, 1927, Mr. Justice Holmes stated in part: "We have seen more than once that the public welfare" may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the state for these lesser sacrifices, often not felt to be such by those concerned, in order to prevent our being swamped by incompetents. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society should prevent those who are manifestly unfit, from continuing their kind." . . . "The principle that sustains compulsory vaccination is broad enough to cover the fallopian tube," and I might add, the vas deferens.

A common thought with a considerable number of people is that sterilization, with the certainty of inability to procreate will tend to greater immorality, but experience of a number of years has proven otherwise. Up to January 1, 1928, 8515 operations for eugenic sterilization had been performed in the United States; 4517 were upon males and 3998 upon females.

The use of X-ray is not entirely successful, as the dosage necessary varies with the individual case and is difficult to regulate, also, if it be successful, it is equal to castration as the hormone-producing part of the ovary is destroyed and the menopause produced.

Gosney and Popenoe say:³⁵

There has not been a single instance discoverable by us in which a sterilized feeble-minded male has been a sex delinquent. The female ament of the type committed to institutions, on the other hand, is characteristically a sex delinquent. She is oversexed, feebly inhibited, lacks other interests and is not merely a ready prey to unscrupulous males but too often an aggressor in this field.

Of the sterilized feeble-minded, nine in twelve had been delinquent prior to commitment to the institution, but when placed on parole after operation, only one in twelve of the same girls proved delinquent.

³⁴ Jacobenson vs. Massachusetts, 197 U. S. 11; 49 L. Ed. 642, 25; Sup. Ct. Reg. 358; 3 Ann. Cas. 765.

³⁵ Gosney and Popenoe: "Sterilization for Human Betterment," p. 40.

From the State Home at Sonoma, California, 125 sterilized and paroled girls were married and two-thirds of those who could be traced, were successful in maintaining comfortable homes and had become worthy citizens, and in all, 1500 out of 7000 cases in California have received parole and as far as traceable are carrying on satisfactorily.

The operations done are vasectomy for the male and salpingectomy for the female and surgically are considered minor in character and can safely be performed and if more generally adopted will materially lessen this menace to society.

I believe the time has arrived when we should, as an Association, again most strongly express our approval of the procedure of sterilization as an effective effort to reduce the number of the defective population of our countries.

THE DISTRIBUTION OF CALCIUM BETWEEN BLOOD AND CEREBROSPINAL FLUID IN MENTAL DISEASES.

By SALOMON KATZENELBOGEN, M. D.,

*Associate in Psychiatry (Department of Internal Medicine), Henry Phipps
Psychiatric Clinic, Johns Hopkins Hospital, Baltimore, Md.,*

AND

HARRY GOLDSMITH, M. D.,

*Physician-in-Chief, Psychopathic Hospital, Baltimore City Hospitals,
Baltimore, Md.*

In a previous study of the function of the barrier between blood and cerebrospinal fluid in mental diseases the bromide test was used.¹ This test revealed a certain tendency to an abnormal barrier permeability in different psychotic groups. The question arises whether the apparent dysfunction of the barrier is specific to bromide or whether it is conditioned entirely by factors proper to the organism and may also be elicited by other methods. It is generally known that the barrier permeability is essentially different towards various substances introduced into the general circulation. It has also been observed that in apparently similar conditions it is changeable, one might say capricious, with regard to the same substance.²

In the light of these observations one feels on safer ground when the function of the barrier is comparatively tested by various procedures. Thus it may be checked, among other methods, by the distribution ratios between blood and fluid of certain endogenous blood constituents (Derrien,³ Weil and Kafka⁴). In this respect calcium appears to be of a particular interest for the following reasons: Calcium plays an important rôle in the pharmacology of the vegetative system: It increases the tone of the sympathetic component (Kraus, Zondek⁵). On the other hand, the rôle of the autonomic system in the symptomatology and pathogenesis of certain nervous and mental diseases presents a problem much debated in the modern literature.

Calcium studies of the blood serum and cerebrospinal fluid present favorable conditions. So far the content of this element in

both blood and spinal fluid has been found to fluctuate within well determined limits in normal conditions; it also appears to undergo appreciable changes in but few pathologic conditions. Another and most fortunate factor is that the method of analysis at our disposal is reliable (Clark and Collip⁹).

Relatively few data are available in the literature as to the content of calcium of the cerebrospinal fluid in both pathologic and physiologic conditions. The relationship between calcium of blood and fluid has been still less investigated. In the extensive study of Cantarow⁷ the normal values of calcium in blood fluctuate between 9.2 and 11 mgm. per cent. The content of the cerebrospinal fluid calcium ranges between 4.5 and 5.5 mgm. per cent. And the normal ratios fluid calcium with blood calcium expressed as percentage were found to be between 45 and 55. Lickint⁸ found variations between 9.5 and 10.5 mgm. per cent in blood and 50-60 per cent of that amount in the cerebrospinal fluid. For Futer and Weiland⁶ the blood calcium lies within the limits of 10-12 mgm. per cent and the fluid calcium corresponds to 6 mgm. per cent.

Kummer and Minkoff,¹⁰ Halverson and Bergheim,¹¹ Pincus and Kramer¹² give 5 mgm. per cent as the average of fluid calcium. In Leipold's¹³ study the normal values in blood range between 8.6-11.5 mgm. per cent and in the spinal fluid within 4.4-5.9 mgm. per cent. The quotient blood calcium with fluid calcium was found to be between 1.78-2.19. Critchley and O'Flynn¹⁴ give 6.2 mgm. per cent as the constant figure in normal conditions. According to Lennox and Allen¹⁵ the normal limits of serum calcium lie between 9.5-10.5 mgm. per cent; those of the cerebrospinal fluid between 4.7-5.2 mgm. per cent; and the normal ratios expressed as percentage fluctuate with 45-55.

However, the findings in pathologic conditions in Cantarow's⁷ observation, showed the cerebrospinal fluid calcium to be increased in 22 cases and decreased in 5 out of 63 cases of tuberculosis. In asthma, out of 25, 16 showed calcium above the normal and one case below. The ratios of fluid calcium with blood calcium were increased in 13 cases and decreased in 11 out of the total number of 68 cases of pulmonary tuberculosis. Increased ratios were found in asthma in 17 out of 25 cases. The 28 patients with nervous and mental disorders included unfortunately too few cases in different psychotic groups to allow a statistical study. Lickint⁸ has found an

increased calcium content in most cases of meningitis and in 10 out of 39 cases of lues of the cerebrospinal system. Critchley and O'Flynn²⁴ consider calcium to be constant in normal and pathologic states with the exception of a diminution in tetany and an increase in Froin's syndrome. The rise in the last named disease is obviously due to the passage of blood serum into the cerebrospinal fluid. In Leiopold's²⁵ study an increased permeability to calcium (blood calcium with spinal fluid calcium between 1.25-1.89 instead of 1.78-2.19 in normal conditions) was found in cases with abnormal findings in the cerebrospinal fluid. He did not however find any proportional relation between the intensity of the induced aseptic meningitis and the degree of the increased passage of calcium from blood into the fluid. One of us made a similar observation with regard to the permeability to nitrate in therapeutic aseptic meningitis.²

The bibliographical data so far reviewed suggest that the extreme normal limits of blood calcium may be within 8.6-12 mgm. per cent. However, according to most investigators and our own experience the normal values are between 9-11 mgm. per cent and the fluid calcium constitutes 45-55 per cent of the amount of blood calcium. An increased permeability to calcium was elicited in pathologic conditions accompanied with meningeal reactions (Lickint,⁸ Leiopold²⁵). On the other hand one knows that meningeal congestion of any nature is likely to increase the passage of various substances from blood into the fluid.² Thus calcium appears to be one of these diffusible elements; its distribution between blood and fluid may therefore serve as a criterion of the permeability of the hemato-encephalic barrier.

Our studies have been carried out on 113 patients who may be classified as follows:

1. Organic psychosis (Anergastic reaction type) 42 cases.
2. Schizophrenic (Parergastic reaction type) 40 cases.
3. Manic-depressive psychosis (Thymergastic reaction type) 10 cases.
4. Mental deficiency (Oligergastic reaction type) 21 cases.

Blood and cerebrospinal fluid were withdrawn at the same time. Clark's modification of the Kramer-Tisdall method was used for the determination of calcium in both blood serum and fluid. (The

latter was also examined with regard to cell and protein content, Wassermann and Pandy reaction.) The results are computed in Table 1.

RESULTS AND COMMENT.

The blood calcium in organic psychosis ranges between 8.1 and 10.9 mgm. per cent. Even if one accepts the statement that normal figures lie between 8.6-12 mgm. per cent (Futer and Weiland*), the widest limits available to our knowledge in the literature, one sees that the lowest calcium content in our cases is below the normal level. Low figures have been found in two cases out of seven in senile psychosis, in 2 out of 10 in cerebrospinal lues, in four out of five in cerebral arteriosclerosis. In the remaining psychotic groups the range lies between 8.9 and 10.6 mgm. per cent, normal limits.

The cerebrospinal fluid calcium contents display a still more marked homogeneity, the limits being in all our cases between 4.1 and 5.9 mgm. per cent as compared to the accepted normal figures, 4.5-5.5 mgm. per cent. A slight deviation below the normal were found in 4 out of 40 cases of schizophrenia. A moderate rise has been observed in 2 cases out of 10 of cerebrospinal lues and in one out of five cases of cerebral arteriosclerosis. It should be noted that neither the slight decrease of calcium in the four cases of schizophrenia nor its moderate increase in the three cases of organic psychosis could be related to the contents of blood calcium, since the latter happened to be normal in the cases with a low fluid calcium and rather below normal in the three cases with a fluid calcium above normal. We therefore deal in these cases with changes in the permeability of the barrier, changes which can be more adequately investigated by the ratios between blood and fluid calcium. As a matter of fact the amounts of the diffusible components of the cerebrospinal fluid should not be considered *per se* as absolute values, but comparably to the blood findings since, other things being equal, they depend partly on the concentration of these elements in blood and partly on the permeability of the barrier between blood and fluid. Hyperglycorachia, for instance, was first accepted as an important symptom of encephalitis. It has been however, subsequently demonstrated that in a great many cases hyperglycorachia is proportionate to hyperglycemia; in these cases hyperglycorachia has

TABLE I
THE CALCIUM CONTENT OF THE BLOOD SERUM AND CEREBROSPINAL FLUID AND THE RATIO OF BLOOD CALCIUM TO
FLUID CALCIUM IN ONE HUNDRED AND THIRTEEN PATIENTS

Number of cases	Diagnosis	Blood Calcium			Cerebrospinal Fluid Calcium			Ratio Fluid Calcium Blood Calcium expressed in percentage		
		Range mgm. %	Increase in cases	Decrease in cases	Range mgm. %	Increase in cases	Decrease in cases	Ratio	Increase in cases	Decrease in cases
42:	Organic psychosis (Anergastic reaction type)									
13	Paresis	9.0-10.9	....	..	4.7-5.3	..	..	44-56	..	..
7	Senile psychosis	8.1-10.0	....	2	4.7-5.2	..	..	48-59	1	..
7	Alcoholism	9.0-10.3	....	..	4.6-5.0	..	..	46-53	..	..
10	Cerebrospinal lues	8.3-10.4	....	2	4.5-5.9	2	..	46-59	2	..
5	Arteriosclerosis	8.2-9.2	....	4	4.6-5.8	1	..	53-65	2	..
40:	Schizophrenia (Parergastic reaction type)									
13	Hebephrenic	9.1-10.6	....	..	4.5-5.1	..	..	42-53	..	..
12	Deterioration	8.9-10.0	....	..	4.1-5.3	..	2	41-54	..	2
11	Paranoia	9.2-10.2	....	..	4.4-5.2	..	..	46-53	..	..
4	Katonia	9.7-10.6	....	..	4.2-4.9	..	2	42-50	..	2
10:	Manic depressive (Thymergastic reaction type)									
3	Agitated . . . . .	....	....	..	....	..	..	....	..	..
2	Depression	9.2-10.1	....	..	5. -5.1	..	..	50-56	..	..
5	Manic phase	9.2	....	..	4.8-5.0	..	..	53-56	..	..
5	Depression	9. -10.0	....	..	4.6-4.9	..	..	48-53	..	..
21:	Mental deficiency (Oligergastic reaction type)	9.0-10.7	....	..	4.5-5.2	..	..	46-53	..	..

therefore no other significance than the hyperglycemia itself. On the contrary, discrepancies between the contents of glucose in blood such as a high glycorachia associated with a normal glycemia, a normal glycorachia going together with a low glycemia, or finally a normal glucose content of the fluid in a case with hyperglycemia are suggestive of a dysfunction of the hematoencephalic barrier." Observation with regard to the distribution of glucose between blood and fluid must warn us against considering the findings of the diffusible blood constituents in the fluid as absolute values, disregarding the blood content of the same substances. Only the distribution ratios may suggest, therefore, the real significance of the concentration of various constituents of the cerebrospinal fluid.

The calcium ratios, expressed as percentage, range between 44 and 65 in the groups of organic psychosis as compared to 45-55 as normal figures. A slightly increased ratio was found in one case out of seven of senile psychosis; in two out of ten cases of cerebrospinal lues; in two out of five of cerebral arteriosclerosis. It is noteworthy that in four out of these five cases the blood calcium was below normal. The fluid calcium was increased in three cases only. The apparently normal values in the other two cases are, however, high when compared to the blood content as suggested by the increased ratios. In all the remaining cases of organic psychosis the ratios were within normal limits.

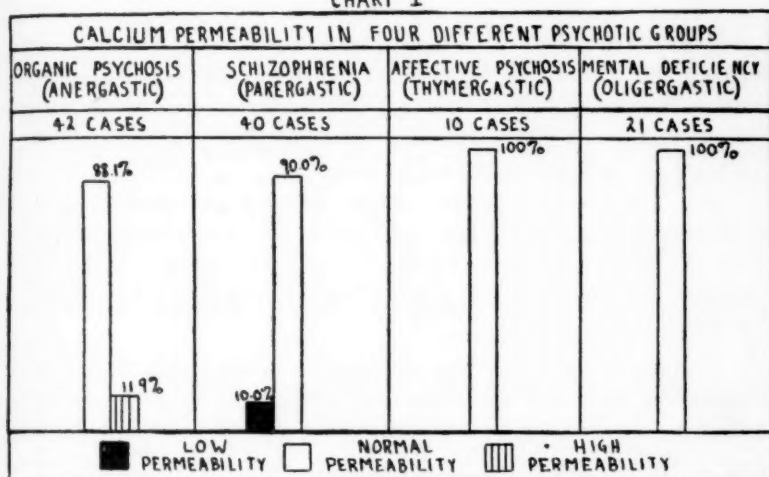
In the schizophrenic group the ratios range within 41-54, being below normal in four cases. In these last named cases, as well as in the whole group, the blood calcium contents are normal; the low ratios are due to low fluid calcium contents.

In manic-depressive psychosis the ratios lie between 48-56 and in mental deficiency within 46-53. One notices that the lowest figures have been found in schizophrenia, the highest ones in organic psychosis.

From our findings it is quite obvious that the calcium contents of the blood and spinal fluid and the distribution ratios can hardly be helpful for the diagnosis since abnormal figures have been found only in a small number of cases in organic psychosis and schizophrenia. [Chart 1.] The distribution ratios are, however, significant when compared with our previous findings with the bromide test in the same diseases.¹ We found a tendency towards an increased permeability to bromide in organic psychosis and a

tendency to a decreased permeability in schizophrenia. The same tendencies although less pronounced, prevail in the same diseases with regard to the diffusion of calcium from blood into fluid. The similarity of behavior of calcium and bromide with regard to their passage from blood into cerebrospinal fluid in similar pathologic conditions present a double interest: First, from the standpoint of the choice of method of testing the function of the hematoencephalic barrier. It appears that the range of quotients of a blood constituent (such as calcium) may give information similar to those which one expects from the bromide quotients.

CHART I



The second point of significance is to be found in connection with certain theories¹¹ on the rôle of the hematoencephalic barrier in mental diseases. It is worth noting that the functional alteration of the barrier in schizophrenia and organic psychosis, as determined by bromide, has been found to be of the same character when determined by the distribution of calcium between blood and fluid. Both the bromide and calcium quotients apparently contribute to the view that the barrier between blood and the cerebrospinal fluid behaves in two different ways in schizophrenia and organic psychosis. On the other hand, the bromide distribution ratios have shown a similar behavior in manic-depressive psychosis and in mental

deficiency.¹ The question therefore arises whether the dysfunction of the barrier is specific in these four types of mental diseases or whether it is only part of a malfunction in a diseased organism, a malfunction which may be found in various heterogeneous pathologic conditions. As a matter of fact, abnormal barrier permeability has been found in various pathologic conditions such as nephritis, diabetes, skin diseases, tuberculosis, etc. (Sünderhauf,¹⁸ Leopold.¹⁹) Above all, pathologic studies of the hematoencephalic barrier need to be substantiated by extensive studies of its function in physiologic conditions.

SUMMARY AND CONCLUSION.

1. The blood calcium in organic psychosis ranges between 8.1 and 10.9 mgm. per cent. Figures below the normal level have been found in 8 out of 42 cases of organic psychosis. In schizophrenia, manic-depressive psychosis and mental deficiency blood calcium was found to be within normal limits.
2. The cerebrospinal fluid calcium showed a slight deviation below the normal in 4 out of 40 cases of schizophrenia and a moderate rise in 3 out of 42 cases of organic psychosis. In manic-depressive psychosis (10 cases) and mental deficiency (21 cases) only normal figures were found.
3. Slightly increased ratios fluid calcium with blood calcium were elicited in 5 out of 42 cases of organic psychosis. In the schizophrenic group ratios below normal were observed in 4 out of 40 cases. In manic-depressive psychosis and mental deficiency the ratios are within normal limits.
4. The contents of calcium in blood and cerebrospinal fluid and the distribution ratios of calcium can hardly be helpful for the diagnosis, since abnormal figures have been found only in a small number of cases.
5. The passage of calcium from blood into fluid follows the trend of bromide which is a tendency to an increased permeability in organic psychosis and a low permeability in schizophrenia.
6. Calcium permeability quotients may therefore give information similar to those which one expects from the bromide quotients.
7. The similar behavior of calcium and bromide with regard to their penetration from blood into fluid contributes to the view that

the hematoencephalic barrier functions somewhat differently in schizophrenia and organic psychosis.

8. The abnormal barrier permeability found in various heterogeneous pathologic conditions suggest that the dysfunction of the barrier is not altogether specific to certain nervous and mental diseases but presents a part malfunction of a diseased organism.

9. More data on the function of the barrier in physiologic conditions are requisite for a correct estimation of pathologic studies.

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GASTROINTESTINAL MOTOR FUNCTIONS IN MANIC-DEPRESSIVE PSYCHOSES.

ROENTGENOLOGIC OBSERVATIONS.*

By GEORGE W. HENRY, A. B., M. D.,

Director of Laboratories, Bloomingdale Hospital, White Plains, N. Y.;
Director of Psychiatric Clinic, New York Hospital, New York City;
Assistant Professor of Psychiatry, Cornell Medical School, New
York City.

This paper is one of a series of reports¹ on the relation of gastrointestinal motor functions to personality disorders as determined with the aid of roentgenological observations of the digestive tract. During the course of routine examinations of psychotic patients it was observed that the function of the stomach and the intestines varied according to the type of mental illness. For the past eight years careful note has been made of the position, tone and motility of the digestive tract of psychotic individuals and a report is made at this time of the findings in 40 cases of manic excitement and in 56 cases of manic-depressive depression. In this group of patients are 43 men and 53 women varying from 20 to 60 years of age but as neither sex nor age plays any appreciable rôle in the findings, no further mention will be made of them. All of these patients and their roentgenograms were examined by members of the staff of the hospital and by visiting internists from the New York Hospital and no patient was included in this study who was suffering from physical disease.

PROCEDURE.

The same procedure was followed in each case. There was no selection of patients with the exception that the degree of psychomotor activity made it impossible to study some of the more excited patients. On the night before the observations were begun the patient was given a laxative and an enema. This was desirable because no laxatives or enemas were permitted while the observa-

* Read at the meeting of the Association for Research in Nervous and Mental Diseases, New York, Dec. 29, 1931.

tions were being made. The barium meal was given early on the next morning and within a half hour fluoroscopic examinations and radiograms of the stomach and duodenum were made in both the erect and the prone postures. No food was ingested until after a six-hour radiogram was taken and thereafter the patient ate the regular meals and followed the usual hospital routine. Twenty-four hours after the bariumized meal was ingested radiograms were made in both the erect and prone postures but otherwise only the prone posture was used. Observations were made on six consecutive days and occasionally for longer periods unless in the meantime all of the barium had been evacuated.

FINDINGS.

In reporting the findings of this study an attempt was made to subdivide the groups according to the degree to which the mood had deviated from the normal. As the emotional state varies during the course of the illness, the actual condition of the patient as described in the clinical record at the time the roentgenographic observations were made, constituted the basis for classification.

Inasmuch as no similar study has been made upon the so-called normal individual, the general averages of the findings in a group of 18 patients who had recovered from mental illness are given for the purpose of comparison. This group is composed of patients who had suffered from the following psychoses: ten with manic-depressive depression, three with manic-depressive excitement, one psychopathic individual with psychosis, one with a paranoid condition, one with toxic-exhaustive psychosis, and one with psychosis associated with hyperthyroidism.

In the tabulations which follow, some of the findings obtained in a similar study of 51 schizophrenic patients are also included for the purpose of comparison. It is less confusing to group separately the position, tonus and motility. Position is recorded in inches, tonus in percentage of type and motility by the number of hours that have elapsed between the ingestion of the bariumized meal and its evacuation.

As might be expected the findings given in Table 1 indicate a greater variation in the level of the more freely moving parts but closer inspection reveals that the position of the viscera in the

TABLE 1
VISCERAL POSITION.

Grouping	Stomach *	Cæcum	Hepatic flexure	Transverse colon	Splenic flexure
Normal	-2.1	-4.3	+2.4	-4.2	+3.4
Manic	+ .5	-3.5	+3.0	-2.0	+4.8
Depressed	-1.1	-4.2	+1.2	-4.1	+4.0
Acute schizophrenic	-1.5	-4.8	+1.5	-3.1	+4.2
Chronic schizophrenic	-1.7	-4.4	+1.4	-3.2	+3.6

* In each case the lower pole of the stomach, the lowest portion of the cæcum and transverse colon and the highest portion of the hepatic and splenic flexures were used in taking measurements of the distance in inches of these points from the level of the iliac crests. The measurements given are those obtained in the erect posture. In recording, the plus sign indicates inches above and the minus sign inches below the iliac crests.

TABLE 2
VISCERAL TONUS.

Grouping	Stomach				Cæcum				Transverse colon				Descending colon				Pelvic colon			
	He	O	Ho	A	He	O	Ho	A	He	O	Ho	A	He	O	Ho	A	He	O	Ho	A
Normal	22	61	17	0	0	72	28	0	6	72	22	0	..	..	..	..	6	56	38	0
Manic	30	50	17	0	42	50	0	8	50	42	8	0	25	58	17	0	0	75	25	0
Hypomanic	42	58	0	0	25	68	7	0	42	58	0	0	64	32	4	0	39	54	7	0
Depressed	9	55	36	0	0	64	36	0	4	45	46	5	0	33	62	5	0	23	47	10
Acute schizophrenic...	17	63	17	3	7	70	23	0	23	50	27	0	20	53	27	0	17	43	33	7
Chronic schizophrenic	19	52	24	5	15	52	33	0	43	52	5	0	24	67	9	0	10	57	18	5

NOTE—He = Hypertonic. O = Orthotonic. Ho = Hypotonic. A = Atonic. All numerals indicate percentages.

TABLE 3
VISCERAL MOTILITY.

Grouping	Stomach 6-hour reten- tion	Ileum 6-hour reten- tion	Cæcum reten- tion	Transverse colon		Descending colon		Pelvic colon	
				Meal	Reten- tion	Meal	Reten- tion	Meal	Reten- tion
Normal	5%	17%	47	..	..	..	..	..	67+
Manic	5%	33%	35	12	33	15	35	25	72+
Hypomanic	0%	53%	20	9	26	11	29	19	47
Depressed	5%	68%	50+	16	81+	24	94+	54	7
Acute									
schizophrenic...	13%	93%	44+	10	64+	20	77+	37	109+
Chronic									
schizophrenic...	10%	81%	37	9	48	18	54+	27	71+

NOTE—The numerals under "meal" indicate the number of hours required for the bariumized meal to arrive and those under retention indicate the time required for the meal to be evacuated. Those numerals followed by a plus sign do not indicate the actual retention time since barium remained in some cases longer than five days.

manic patients is from one to two inches higher than that found in any other group. That this change is a manifestation of the manic state will be made more clear in the subsequent discussion of other possible contributing factors.

The great difference in the gastrointestinal tonus of the manic and depressed patient is evident from a study of Table 2. This difference is more marked in the distal third of the colon which is hypertonic in approximately 50 per cent of the hypomanic patients while in the depressed patients hypertonicity is not observed.

In addition to the more obvious differences in visceral motility of the manic and depressed group, the separation of the hypomanic from the manic patients permits an observation of fundamental importance. Table 3 shows that the hypomanic patient evacuates a bariumized meal more than 20 hours sooner than the normal while the manic patient requires about five hours longer. In other words it appears that the organism tolerates a moderate acceleration of physiologic processes but beyond this they begin to be retarded.

The degree to which motility is altered in the different psychotic states may be presented more clearly in Table 4 representing the percentage of cases showing retention in the various parts of the colon longer than five days.

TABLE 4
PERCENTAGE OF RETENTION LONGER THAN FIVE DAYS.

Grouping	Cæcum	Transverse colon	Descending colon	Pelvic colon
Normal	0	0	0	6
Manic	0	0	0	25
Hypomanic	0	0	0	0
Depressed	5	25	32	68
Acute schizophrenic	14	14	29	72
Chronic schizophrenic	0	0	0	9

The very marked difference in visceral motility of the manic-depressive patients may be more clearly realized from the fact that the average hypomanic patient requires only 47 hours to evacuate a bariumized meal while 68 per cent of the depressed patients require longer than five days.

It is not possible to determine the actual degree of visceral hypomotility in depressed patients without causing them much discom-

fort and perhaps further impairment of health. The degree of retardation not uncommonly observed may be illustrated by the findings in the case of a married woman, age 48, who had had three children, two miscarriages, was 33 pounds under weight, had a slight amount of abdominal relaxation, and who was undertalkative, underactive, felt depressed and confused and thought she was affected by electricity. In this case radiograms were made on six consecutive days and she was then returned to the clinical service so that routine treatment might be continued. According to the nurses' notes she was given on the sixth day an enema which was followed by "copious return, thick fluid, constipated stool." On the same day she was given two drachms of cascara which was followed by a "small stool." On the eighth day she was given four drachms of cascara which was followed by a "watery stool," a "small constipated stool" and a "copious watery stool." On the tenth day she was given two drachms of cascara and had no movement. On the eleventh day she was given four drachms of cascara which was followed by a "small constipated stool." On the thirteenth day she was given an enema and there followed a "thick fluid return with large masses of fæces." In the meantime, radiograms were being made to determine how the barium was progressing. It required more than 96 hours to pass the cæcum, more than eight days to pass the transverse colon, more than 10 days to pass the descending colon and there was still some barium in the pelvic colon at the end of 14 days.

From such observations it becomes obvious that regular bowel movements are not in themselves sufficient evidence that the motility of the colon is normal since any given bowel movement may be the residual of something eaten a week or two ago. There is probably no more accurate way of determining this than by following the course of a barium meal through the alimentary canal.

In reviewing the group of depressed patients for clinical evidence of marked visceral hypotonicity and hypomotility, it was found that those patients who are described as being retarded, hypochondriacal, confused or perplexed were most likely to have these disturbances of gastrointestinal function. As motor activity and contact with reality increases, visceral function tends to return to normal. The presence of a painful emotional state however is an almost certain indication that visceral function is disturbed. This

conclusion is supported by observations made on a group of patients suffering from involution melancholia. The degree of hypotonicity and hypomotility was essentially the same as that observed in manic-depressive depression probably because the increased motor activity or agitation is directly associated with and an expression of a painful emotional state.

Among the many factors which tend to modify gastrointestinal motor function, the influence of the height, weight, habitus and degree of abdominal relaxation^{28, 36} was studied. It appears that the more poorly nourished a depressed patient is the more accentuated are the findings which are characteristic of depression. For instance, the average time required for a barium meal to reach the rectum in cases of depression with a normal height-weight ratio, is 32 hours while with those depressed patients who are 20 to 40 pounds under weight, the average time is 48 hours. On the other hand the deviations from the normal height-weight ratio were as great in the manic group and the findings were just the opposite. Whatever the effect of weight alone may be on gastrointestinal motor functions it was neutralized in this study by the fact that both the manic and the depressed groups showed essentially the same amount of deviation from the normal weight.

In like manner, the influence of the habitus upon the total results obtained is negligible since the hyperæsthenic, sthenic and asthenic types were distributed equally between the manic and depressed groups.

Unless the amount of abdominal relaxation is excessive the influence of this factor is registered chiefly in the position of the viscera. As a matter of fact marked relaxation was found in 17 per cent of the manic patients while it was observed in only 11 per cent of the depressed patients. With respect to tone and motility, the position of the viscera is the least important factor in gastrointestinal motor functions. This impression is supported by the report of Moody *et al*²¹ on "the results of fluoroscopic and roentgenographic study of the position in 600 healthy young adults" from which it was concluded that low position of the stomach and intestines is "seldom or never the cause of gastrointestinal disturbance."

Before final evaluation is made of the degree to which the disturbances of visceral function in cases of manic-depressive depres-



FIG. 1.—M. D. Excitement, age 21. Colon has good position, tone and motility. Patient is 13 lbs. underweight but has no abdominal relaxation. Barium entirely passed at 48 hours.



FIG. 2.—M. D. Depression, age 48. Colon filled with barium 72 hours after meal and much poorer tone than in Fig. 1.

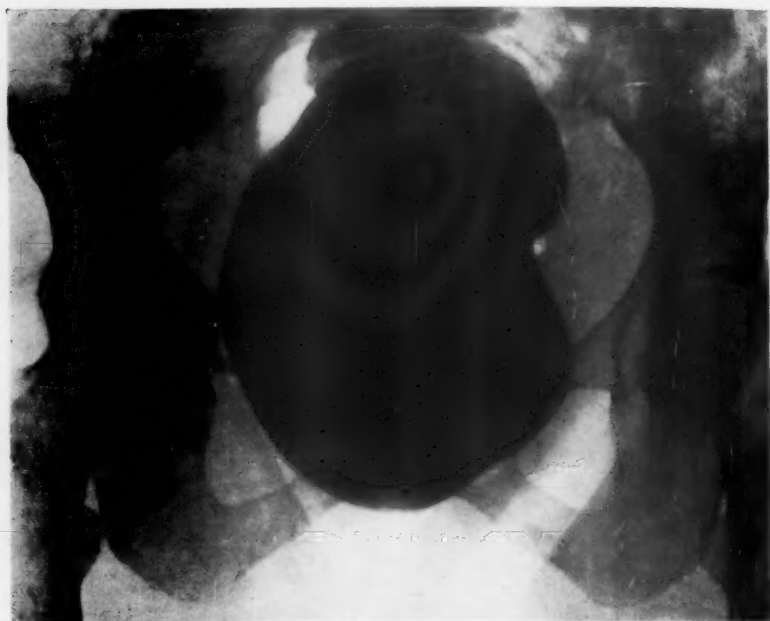


FIG. 3.—Same patient as in Fig. 2. Rectum much distended 12 days after barium meal in spite of an enema and daily laxatives for six previous days. Patient did not complain especially of constipation.



FIG. 4.—Recurrent, retarded depression. Age 53. Marked retention in ileum six hours after barium meal.

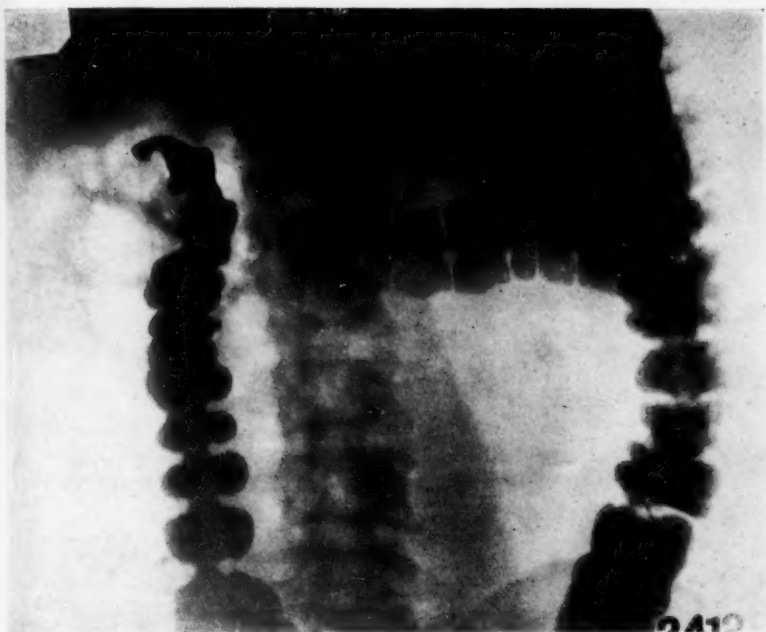
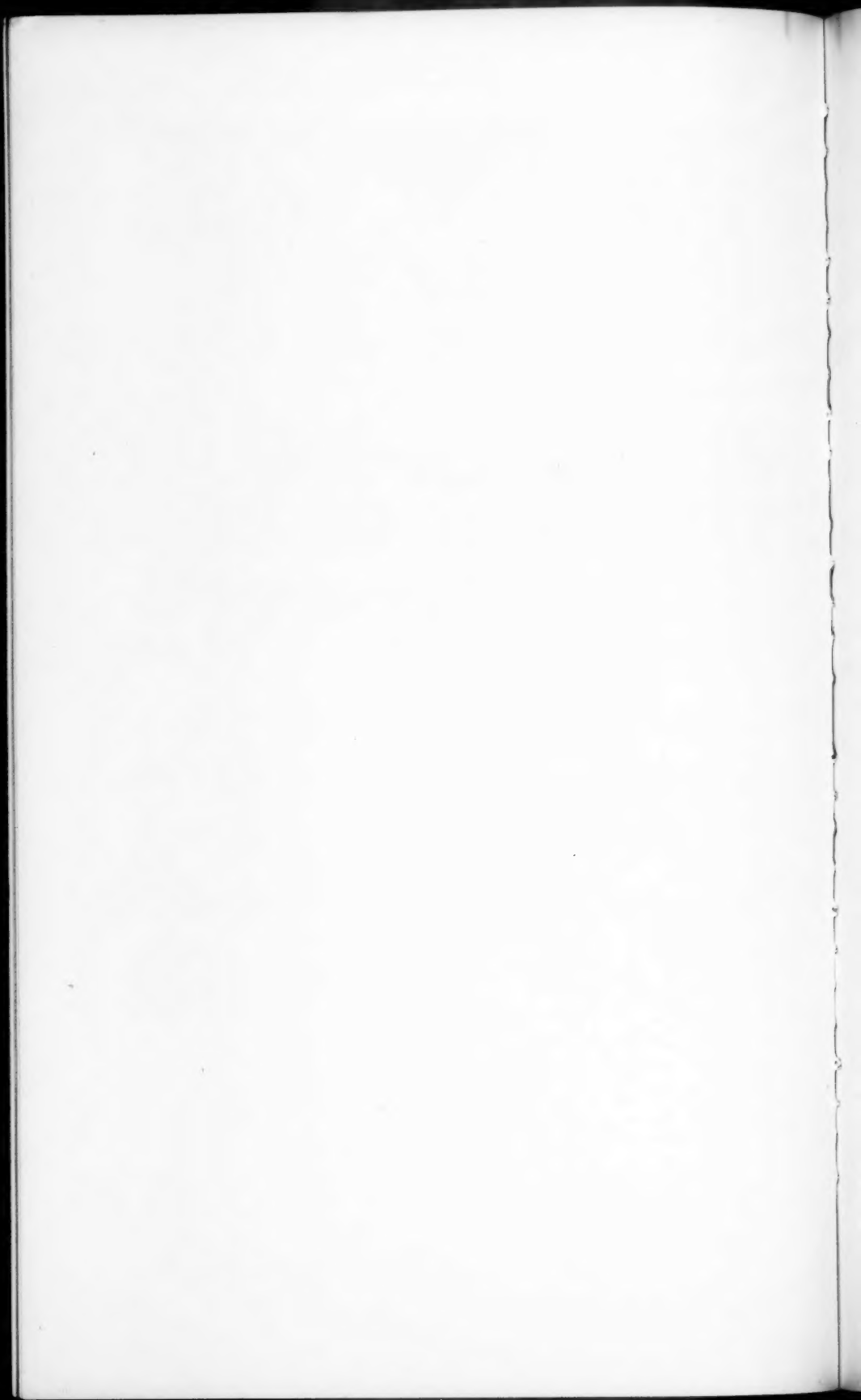


FIG. 5.—Same patient as in Fig. 4. Colon markedly redundant and filled with barium 8 days after the barium meal.



sion may be pathological, it is desirable to inquire further regarding the gastrointestinal motor function of the normal individual. In the text-book by Carman⁸ the following normal standards are given:

With the stomach empty at the end of six hours and the head of the motor meal anywhere from the cæcum to the hepatic flexure, the gastric motility is considered normal. . . . The normal limit for fairly complete evacuation of the small bowel, . . . ranges from 8 to 15 hours after taking the barium meal. . . . Hurst¹⁴ suggests the following as an average time table for the "head" of the ingested meal:

Cæcum	4 hours
Hepatic flexure	6 hours
Splenic flexure	9 hours
Pelvic colon (sigmoid).....	12 hours

From this point on, the rate of progress will depend upon the time and frequency of stooling, and as this occurs ordinarily once daily, a 24-hour variation is easily possible under normal conditions. Twenty-four to forty-eight hours is regarded by some roentgenologists as a fair time basis for the passage of bariumized food through the digestive tract.

These estimates are essentially in agreement with the conclusions of Barclay,³ Case,⁹ Strauss,¹⁴ and Burnett⁵ obtained from the examinations of large numbers of normal individuals.

DISCUSSION.

Colonic hypotonicity and hypomotility such as is observed in depressed patients would undoubtedly be considered by many gastroenterologists as evidence of some grave mal-function. It is probable that Carman is expressing the experience of many observers when he says that "Retention of all or the greater part of the meal in the colon after 48 hours may be regarded as possibly significant of obstruction or grave functional disturbance." On the other hand all psychiatrists are aware of the vast number of depressed patients who have complained repeatedly that their bowels do not move and who have been described as being hypochondriacal or as having somatopsychic delusions.

With such gross changes in the function of the gastrointestinal tract it is remarkable that normal function returns with recovery from the psychotic condition. This restoration of normal function has been observed by means of repeated roentgenologic examinations in a number of cases. Observations have been made on the same patient in the different phases of manic-depressive psychosis

and the findings have been characteristic of the associated emotional state. Moreover, observations have been made on the same patient at six-month intervals and the gastrointestinal motor functions remained unchanged as long as there was no change in the emotional state.

It is perhaps unnecessary to remark that this study of gastrointestinal motor functions is not confined to the more simple relationships between digestive processes and personality disorders. Instead these observations are regarded as indices of the function of the vegetative nervous system in the presence of painful emotional states and it is hoped that by this method of investigation the knowledge of the physiological component of personality disorders may be increased.

Whatever the nervous pathways for the conduction of painful emotional stimuli may be the digestive tract is highly responsive to changes in the emotional state and when the stimuli are painful it behaves as if there was a predominant inhibiting action of the sympathetic division of the vegetative nervous system. On the other hand, when the stimuli are pleasant it behaves as though there was a predominant action of the autonomic division with a consequent acceleration of nutritive metabolic processes.

These observations might be regarded as corroborative of the interesting psychoanalytic formulations of Abraham¹ regarding manic and depressive psychotic reactions. It may be that the retardation of visceral function is the physiological expression of a melancholic form of narcissistic identification with the love object or of the attempt by means of introjection to remove the love-object from the danger of being destroyed by sadistic desires. It may be that the manic is an individual who turns his libido to the outer world with an excess of eagerness when "his ego is no longer being consumed by the introjected object." It is evident, however, that whatever may have contributed to the psychosis its presence implies fundamental changes in physiological processes. A vicious circle is then established and little progress can be made in the readjustment of the total individual until these physiological processes are favorably altered. Until we learn more about the means by which this may be achieved we must wait patiently while the "period of self-torment lasts until lapse of time and gradual appeasement of sadistic desires"—make it possible for the object

to "come out of its hiding place in the ego." In any case it is interesting that students of psychopathology should arrive at similar conclusions with regard to the facts of visceral function and it is to be hoped that they will continue to supplement each other's work and eventually arrive at a mutual understanding of the same problem.

CONCLUSION.

Roentgenologic observation of gastrointestinal motor functions in 96 cases of manic-depressive psychosis permits the following general conclusions:

1. Definite changes in visceral function occur in manic-depressive psychoses.
2. In the manic phase, the position of the viscera is from one to two inches higher than in the depressive phases.
3. Hypomanic patients present a marked increase in visceral tension and motility.
4. In manic patients visceral function has already passed the limit of acceleration and begins to be retarded.
5. Depressed patients present a marked decrease in visceral tension and motility.
6. Gastrointestinal hypotonicity and hypomotility are most exaggerated in those depressed patients who are described as being retarded, hypochondriacal, confused or perplexed.
7. The average time required for a hypomanic patient to evacuate a bariumized meal is 47 hours.
8. The average time required for a depressed patient to evacuate a bariumized meal cannot be determined since 68 per cent of these patients retain barium or food residue over a period longer than five days.
9. Without medical aid some depressed patients retain food residue for a period longer than two weeks.

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A PRELIMINARY NOTE ON SOME OBSCURE SYMBOLIC MUSCULAR RESPONSES OF DIAGNOSTIC VALUE IN THE STUDY OF NORMAL SUBJECTS.

By MAURICE H. KROUT,
Crane Jr. College, Chicago.

OUTLINE.

1. The Observation of Reflex Movements: A Quest for Objectivity.
2. The Analysis of Tics and Postures: A Quest for Symbolism.
3. The Interpretation of Mimetic Responses: A Quest for Objective Symbolism.
4. Measurement and Introspection in the Study of Symbolic Responses: A Quest for Method.
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This paper is concerned with certain types of gestures found in normal personalities, which have not as yet been adequately, if at all, studied by psychologists. Obviously no topic can claim the merit of exclusiveness. Studies in marginal fields always throw light on a subject chosen for investigation. To these one must turn for such light as they may throw on the problem at hand. Yet one must be cautious to indicate wherein precisely his problem differs from problems previously attacked by other investigators. Only by so doing does one acknowledge his debts and at the same time sharpen his concepts and bring his problem into bold relief. This for his own benefit as well as for that of the reader.

It is with the aim of relating the topic before us, to the investigations in other divisions of psychology that we shall review some well-known contributions. No attempt at thoroughness is either necessary or proper, and the discussion must therefore be conducted in terms of such aspects of other problems and contributions as seem to be relevant to our problem. If, in spite of this, it may be claimed that the first four sections, devoted to a review of other people's work, are unnecessarily detailed, let it be remembered that, directly or by implication, the succeeding sections are contingent on

the work reviewed. At best *all* of the theoretical and methodological antecedents of this, or of any, paper cannot be acknowledged.

THE OBSERVATION OF REFLEX MOVEMENTS: A QUEST
FOR OBJECTIVITY.

It was indeed a healthy tradition that Pavlov started in the study of living animals. As he himself has said, his aim was to evade all "fantastic speculations as to the existence of any possible subjective state in the animal, which may be conjectured on analogy with ourselves."¹ Pavlov at first concerned himself exclusively with what he called "the machine-like inevitable reactions of the organism-reflexes existing from the very birth of the animal, and due therefore to the inherent organization of the nervous system";² but as his work went on he was struck by the discovery that animals acquired new reactions while he worked with them and, furthermore, that these new reactions stood in a definite temporal relationship to the fundamental activities which he studied. Faced with the necessity of explaining what he had observed, he concluded that "The cells predominantly excited at a given time become foci attracting to themselves the nervous impulses aroused by new stimuli, impulses which on repetition tend to follow the same path, and so to establish conditioned reflexes."³ This conclusion, viz., that what the Germans have so appropriately called *Bahnung*, or the laying down of fresh pathways, results from the attachment of new experiences to old, is not however his chief contribution. Regardless of the transmutations through which the principle of conditioned reflex may pass in the course of time,⁴ Pavlov's work will always stand out as a contribution from the point of view of scientific methodology.

The objective movement initiated by the great Russian physiologist has had its effect on the work of psychological investigators everywhere. To Pavlov belongs the credit for the work which they have done in the study of human infants not only because they have, in the majority of the cases, attempted to test his hypotheses but, even more, because they have followed his rigidly objective method. Krasnogorski and others in Russia, Charlotte Bühler and her associates in Switzerland, Watson, Lashley, Mateer, Jones, Blanton, Blatz and their associates in America,⁵ by following

Pavlov's method, acquired considerable knowledge with reference to the genesis and development of human conduct in children. Watson is probably the most prominent representative of this group of investigators. His findings, insofar as they are relevant to the topic before us, we shall examine in more detail.

It is well known that Watson undertook to solve the question of what is and what is not learned in human behavior by investigating the responses of infants to a miscellany of stimuli to which they were exposed soon after birth. In so doing he aimed to accomplish for human beings what Pavlov had attempted to accomplish for some of the other mammals. Watson's list,⁸ as finally announced, includes among others the following reflexes found in infants at birth:

REFLEXES (WATSON).

- | | | |
|-----------------------|------------------------|------------------------|
| 1. Arm movements. | 11. Hiccoughing. | 18. Standing and walk- |
| 2. Blinking. | 12. Holding up head. | ing. |
| 3. Crawling. | 13. Leg and foot move- | 19. Sucking. |
| 4. Crying. | ments. | 20. Swallowing. |
| 5. Elimination. | 14. Movements of head | 21. Swimming. |
| 6. Erection of penis. | and neck. | 22. Tongue movements. |
| 7. Eye movements. | 15. Rhythmical "climb- | 23. Trunk movements. |
| 8. Feeding responses. | ing." | 24. Vocalization. |
| 9. Grasping. | 16. Smiling. | |
| 10. Hand movements. | 17. Sneezing. | |

These unlearned responses Watson organized into a "Stream of Activities" chart in which he traced the probable effect of socialization on original nature. The social-conditioning principle is consistently applied in this chart, though some of the reflexes (*e. g.*, hiccoughing, sneezing, and blinking) are left without any indication as to their ultimate nature in socialized human conduct.⁷

In the study of behavior from the point of view of reflex activity a great many difficulties are encountered. Of these difficulties neither Pavlov, nor Watson, nor the other objectivists could be said to be unmindful.⁸ Pavlov himself has recently testified as follows:

Although the investigation of these reflexes by physiologists has been going on now for a long time, it is as yet not nearly finished. Fresh reflexes are continually being discovered. We are ignorant of the properties of those receptor organs for which the effective stimulus arises inside the organism,

and the internal reflexes themselves remain a field unexplored. The paths by which nervous impulses are conducted in the central nervous system are for the most part little known, or not ascertained at all. The mechanism of inhibitions confined within the central nervous system remains quite obscure; we know something only of those inhibitory reflexes which manifest themselves along the inhibitory efferent nerves. Furthermore, the combination and interaction of different reflexes are as yet insufficiently understood.⁹

To these honest doubts of a great scientist we might add a few others.¹⁰ Is the stimulus separable from the response? If so, what happens to the stimulus after the response is made? Does the receptor shut it out? Does it move beyond the organism's range of sensitivity? Is the energy of the stimulus converted into nervous energy which spends itself in the act? If so, does the stimulus contain the energy transmitted to the organism, or is the energy released from the organism? Is the person observing stimuli and responses also observing changes going on within the organism?

The chief problem of perception and learning, in any case, is how a stimulus described in the barest physical terms becomes an object of activity on the part of an individual. This could not be answered by the reflexologist unless he take a great deal more into consideration. And yet it is to his credit that he has insisted on the integration (though crudely conceived as the summation of S-R units) of the organism, maintaining as he has that "the whole individual . . . becomes expressed . . . in the act he is doing."¹¹ It is also noteworthy that he has conceived of the organism's reactions as functions of environmental influence and of its adjustment as the restoration of a disturbed equilibrium dependent on conditioning factors in the environment.

The behaviorist's scheme breaks down because he attempts to over-simplify the reality of existence. In doing so he reaches a point where he declares that excitation and inhibition are fundamentally "different phases of the same process."¹² Thus reacting positively and reacting negatively, from an "objective" standpoint, come down to the same thing. "Objectively," drinking poison and refusing to drink poison may be the same thing; but subjectively, they are vastly different.

Another oversight on the part of extreme objectivists is found in their failure to realize that reflex conditioning, as proved in their own experiments, has only a limited range of possibilities.¹³

Under the complex conditions of human existence the detailed and specialized correlation between the acting organism and its environment cannot be explained by reflex conditioning which is incapable of accounting for the higher integration units in behavior, cannot forestall regression to an earlier conditioning, and cannot prevent new conditionings from interfering with, or inhibiting, older conditionings.¹⁴

From the point of view of this paper the chief distinction of the reflexologists—seekers of objectivity in the study of human behavior—lies neither in the theory upon which they have struck—suggestive though that is—nor in the rigid requirements for experimental procedure which they set up for themselves—fruitful and important though these were—nor yet in their emphasis on the environmental reference of all behavior—revealing as that proved to be—but in the fact that their observations were based, in large part, on the motor activities of their subjects. For objectivity reaches its highest point in the study of responses as overt movement.

Objectivity is essential in scientific work, but objectivity, even when facilitated by instrumental aid, is not independent of somebody's apperceptive mass. The most objective procedure in science is beset with the limitations imposed by the unfortunate fact that the perception, memory, and reasoning of the observer cannot be severed from what he observes.¹⁵ Instruments are merely extensions of the operator's senses, and ultimately depend on these. Objectivity then is a relative term. "Whatever the hand seeks to control it must crush a little."¹⁶ In the last analysis, all that objectivity means is the consensus of the competent as to the reliability of given conclusions derived from valid data. The epistemological challenge of behaviorists neglects the symbolism of behavior on the assumption that symbols cannot be measured. They may be objectively valid nevertheless. His neglect of symbolism and oversight of the conceptual aspect of all mental life, including that of the scientist, are the behaviorist's gravest faults.

THE ANALYSIS OF TICS AND POSTURES: A SEARCH FOR SYMBOLISM.

Physiology and pathology from one standpoint are the obverse of one another; but from another standpoint they are continuous

with, and presuppose one another. Pavlov and his followers could not therefore be uninterested in abnormal behavior. Some of Pavlov's work consisted in showing that the conditioning principle was operative in the production of abnormal states as well as in those acknowledged as normal. But his attempt, through artificially induced expressive behavior of animals, to prove his point could hardly be said to have fixed the etiology of all mental disease. The aberrational states of individuals represent so many different kinds of inner symbolic experience as to reduce frequently to insignificance outer similarities in behavior. The principle of conditioning is thus too limited to be of diagnostic aid in the cases which present themselves to the psychiatrist or clinical psychologist. The greatest progress in the understanding and treatment of aberrational behavior had to be made by those who were interested not merely in the outer signs of behavior but in its inner meanings, not merely in motor-phenomena but also in the analysis of the symbolic significance of each case.

For years psychiatrists have been concerned with the more or less intractable forms of neuro-muscular aberrations. Paralysis agitans, Sydenham's chorea or St. Vitus' dance, multiple and diffuse cerebral sclerosis, Friedrich's ataxia, poliomyelitis, infantile convulsions, and epilepsy are illustrations in point."

Some of these forms of behavior characterized by irregular, involuntary contractions of the muscles and a variable amount of mental disturbance have been attributed to an acute infectious state of the organism. Others, known as functional disorders, have been rather innocently dubbed "habit spasms". The latter, ranging from localized muscle movements to explosive utterances and a variety of mental symptoms, have been designated by the French, *tics convulsifs*.

Convulsive tics have been generally distinguished from involuntary movements having an organic background, on the one hand, and the involuntary movements of psychotics on the other. Meige and Feidel," who first discussed the subject in a comprehensive way, defined the term *tic* as a "psychomotor disease presenting a coordinated, purposive act, provoked by an 'affective mental image' of an originally external cause or idea, gradually growing in intensity, frequency, and form until it appears as a convulsive movement, inopportune and excessive." The distinction between organic

spasms and tics was found by these neurologists to lie in the fact that the cortex is not involved in tics as it is in habit spasms, that there is no pain associated with them as there may be in the case of spasms, and that they do not persist in the subject's sleep as spasms do." The dissociated stereotypies of the paranoid or catatonic patient, again, have been considered different from tics in that psychotic movements lack the lightning-like, fugitive character of tics, and have a permanent symbolic component (fixed ideas) and an emotional accompaniment which tics lack. The tic patient has been thus regarded as one who has not lost the awareness of his muscular contractions but who has lost the ability of governing them."

In the study of tics and other compulsive movements Janet has insisted on two points: First, that they must all be considered "from the single viewpoint of action," that is to say in their objective aspect; and second, that they must be regarded as incomplete or unfinished acts." Neither Janet nor any of the neuro-psychiatrists has done sufficiently to explain how these functional automatisms come to be unfinished. Occupied with externals of behavior and with its neuro-physiology, these students could not explain the nature of tics satisfactorily.

It was from the subjectivists that the greatest amount of aid was received in the study of human individuals; for that group of students in Austria, Germany, and Switzerland who, within less than a generation, have made such important strides in the interpretation of human behavior were admittedly subjectivists." As is well known, their studies began with the investigation of that most puzzling of human specimens of whom it was said that he "suffers mostly from reminiscences." The hysteric to whom, after the futility of the hypnoanalytic approach became evident to them, Breuer and Freud first drew the attention of psychologists, displays certain objective symptoms which may be assumed to be remnants of "memory symbols" of certain traumatic events." These symptoms, known as hysterical conversions, have been explained on the grounds that the "mental energy" which under normal conditions is drained off by way of physical innervation, receives expression in the emotions, and thus becomes responsible for various reactions ranging from tremors, through tics and choreic movements, to actual paralyses." But objective symptoms, for the

analysts, were only cues to the subjective states with which these symptoms seemed to be manifestly connected.

The abnormal symptoms of psychoneurotic conduct, labeled by Freud "symptomatic acts" and by Pfister "manifestation acts,"²⁸ constitute the objective material with which the psychoanalysts, like the neuro-pathologists, began their work; and it was on their observations of the motor-expression of the symptoms that they based their conclusions as to the "complexes" to which these symptoms had reference. As classified by Pfister,²⁹ the manifestation-acts appear as follows:

MANIFESTATION-ACTS (PFISTER).

A. Motor Phenomena:

Increased:

1. Clucking.
2. Twitching of the cheeks.
3. Tic of the eyelid.
4. Convulsions in the arm.

Decreased:

1. Dumbness.
2. Stuttering.
3. Writer's cramp.

B. Vasomotor Phenomena:

1. Swollen lips.
2. Skin eruption.

C. Sensory Phenomena:

1. Hyperesthesias.
2. Itching scalp.
3. "Two crowns of thorns."³⁰
4. Visions.
5. Buzzing in the ears.
6. Innervations in the arm.
7. Tactual hallucinations in hands and feet.
8. Neuralgia.
9. Pains in the arm, leg, or back.
10. Pains in the shoulder.
11. Pain in the stomach.
12. Hypoesthesias (dimness of vision, deafness, etc.).

The psychoanalysts obviously have made more use of the observations listed here than has any other group of abnormal psychologists. More than any school surely have they insisted that the normal and the abnormal pass into each other by imperceptible gradations, thus forming a continuum without beginning and

without end. It was then merely as an extension of their work on the hysteric that they delved into the "psychopathology of every-day life" as represented by bungled facts and chance acts (*Fehlhandlungen* and *Zufallshandlungen*) on the subconscious level, to point out that the purposes of so-called normal individuals may be inadvertently and strikingly disturbed without the interference of any apparent external stimulus. Misplacing or losing objects, mistakes in spelling, reading or speaking; and instances of forgetting, they pointed out, are left untouched by the orthodox theories of neuropathology, which are too remote and too superficial to facilitate understanding of these and other phenomena bordering on the abnormal.

Proceeding on the conviction that there is nothing arbitrary or fortuitous in human action of any kind, the psychoanalysts discovered that the difficulty in the interpretation of human action often lies in the tendency of human beings to clothe the antecedents of their acts, as well as the acts themselves, in symbols which obscure their meaning and make them appear unrecognizable and mysterious. The fundamental explanation of the symbolic tendency the analysts assumed to be lodged in the conflict between the sex (*libido*) and the gregarious impulses. The sex impulse, deflected from its original course by the gregarious impulse, seeks to worm its way into its wonted channels. Unable to do so, it becomes repressed and assumes the form of a complex, *i. e.*, of an emotionally-charged idea or wish. The manifestation-acts, being a subconscious reversion to the original instinct-pattern, constitute the symbolic fulfillment of the repressed impulse asserting itself independently of the existing situation. Since with every gratification of the instinct, pleasure is released, the symbolic manifestation appears not only as a mechanism by which the organism achieves pleasure and avoids pain but also as a form of escape from the interference of the demands of life (Freud), or the impelling force of conscience (Jung), or an inherent organic inferiority (Adler), with the instinctive functioning of the organism.²⁸

The work of Freud, Jung, and Adler marked the barest beginning of the psychoanalytic movement. In the work of such men as White, Jelliffe, Jones, and Kempf²⁹ the movement reached a higher point than even its founders had anticipated. Particularly in Kempf's writings do we find the maturest expression of the psycho-

analytic trend in psychology, coupled with the theoretical contributions from the so-called objective sources—namely, reflexology and endocrinology (in a sense, an offshoot of reflexology). It was the marriage of the illegitimate psychoanalytic maiden to the struggling upstart from the objectivist camp—contrary to the prohibitions of their guardians—that Kempf conceived and successfully carried out. Pure psychoanalysis, according to Freud, would be poor psychoanalysis if it ever allied itself to physiology,³⁰ but Kempf risked the alliance in the hope that both camps might profit by it. Thus he assumed that the human organism is an integration of postural reflexes which keep up a steady flow of mild innervation holding the skeletal parts in useful positions against the force of gravity. The resulting postural tonus, he further assumed, varies with the state of the organism, there being both high and low levels of tonicity, depending on the orientation of the individual in his milieu.

Objectively Kempf found the postural tonus to receive expression in characteristic muscle tensions which he set himself the task of observing. The postures described in his *magnum opus* could be summarized as follows:³¹

POSTURES (KEMPF).

- | | | |
|--------------|-----------------|-----------------------|
| 1. Standing. | 6. Submissive. | 11. Of eyes. |
| 2. Stooping. | 7. Crucifixion. | 12. Of feet. |
| 3. Kneeling. | 8. Fetal. | 13. Of hands. |
| 4. Walking. | 9. Facial. | 14. Of lips. |
| 5. Dying. | 10. Sexual. | 15. Of vocal muscles. |

though, as interpreted symbolically, they appear in this form:³²

1. Autoerotic anxiety.
2. Autoerotic abandonment.
3. Infantile regression.
4. Paracidal or manic compensation.
5. Defensive gestures.

In keeping with psychoanalytic theory, Kempf holds that the postural tonus reveals the ego's struggle with the repressed affect, *i. e.*, the struggle of the instinctive and the social elements in human nature. Freud puts it almost in the same way when he speaks of his principle of economy, *i. e.*, of the task of distributing the quantities of excitation (cathexis), as the chief problem of

human adjustment. White refers to the same principle when he points out that "the energy system of the organism is the result of the flow of energy toward an equilibrium."³⁸ Thus we meet once more, as in the writings of the reflexologist-behaviorist group, the emphasis on integration and the relatedness of the organism to the environment in which it acts; except that, in Kempf's interpretation of it, this becomes reconcilable at once to the clinical theories of the analysts and to the laboratory findings of the reflexologists.

Psychoanalysis is not without its faults. The *subconscious*, its major concept, is enjoying a temporary reprieve during a stay of the execution-order issued by the behaviorist court.³⁹ The chances of its continuance at large, as a tool of interpretation, are, however, very good. If only employed with discretion, in the sense of a *level of behavior* rather than of a *concrete entity*, it will continue to be increasingly useful to psychologists. The symptoms of subconscious conflict—the manifestation acts—whatever else they signify, point in the theories of psychoanalysts to the realization of a phantasy with sexual content. This sexual-erotic element, when used consistently, tends to lose the significance it possesses,⁴⁰ for, when so used, the sex-instinct principle changes from an explanation to a drive for self-justification. As such it leads to dogmatism and exaggerated simplification, and loses its value as an operational concept. For when we say that the symptomatic act—*e. g.*, a shrug of the shoulders or slip of the tongue—is a manifestation of an instinct seeking self-gratification, regardless of what the specific reference of the manifestation in question may be, we become more and more abstract and get farther and farther away from the stage of helpful explanation. Again, when the analyst speaks of the physical phenomenon, or the objective symptom, as an index of an excitation proceeding from an "affective idea" or complex, he is probably right, except that he does not account for the manner in which, in his psycho-physical scheme, the transformation of psychic into physical energy takes place. The nearest approach to explanation, on the part of the analyst is found in his pleasure-pain principle; but the multiplicity of meanings attributable to pleasure and pain, as feelings, the impossibility of treating them as motives, and the obvious dependence of these feelings on the structuralization of elements in the act of perception, make this principle rather useless.

One of the major services of the psychoanalyst is to be found in the discussion of the symbolism of tics and postures as manifestations of subconscious activity. For whatever place psychology may in the future assign to their esoteric theory of the subconscious, whatever faults it may find with their metaphysical speculations as to the rôle and expressions of the *libido*, it will have to give due weight to their insistence on the mechanistic interpretation of human conduct wherever found, their proof of the validity of the genetic viewpoint in the study of human conduct, and their effective method of collecting case material. In their attempt to produce at once a philosophy, a science, and a technique of treatment, they often fell into errors which at present do not seem unavoidable. Whatever the merit of some of their pronouncements, it must never be forgotten that the analysts are physicians of wide experience and deep insight, and that their theories are attempts to generalize on the results of their clinical practice.

THE INTERPRETATION OF MIMETIC RESPONSES: A QUEST FOR OBJECTIVE SYMBOLISM.

The attempt to induce from the study of muscle movement the subjective aspect of human responses has been divorced from both reflexology and psychoanalysis. Though Duchenne²⁶ had first written about it in a creditable way, it was Piderit who advanced, under the name of mimetic theory, the study of the face.²⁷ This later found support in the writings of Charles Darwin²⁸ in England and of Wilhelm Wundt²⁹ in Germany, and gradually spread to the United States. Unfortunately, this field of research has often been connected with the hopeless claims of palmistry, a practice ages old, and even more with the eighteenth-century vagaries of Gall and Spurzheim. Recently however the movement was revived and given new impetus by several reputable students of psychology.

The muscles of the human face and body are most plastic when the individual is in a state of emotional excitement. It was this subjective condition that most psychologists have tried to associate with muscle movements observed at the same time. Correlating the observed phenomenon with the expressed subjective state, they hoped to obtain scientifically valid norms of bodily expression, applicable to certain mental states. The mental state known as emotion has been variously interpreted however. As generally

understood, it is the sum-total of experiences during any period in which marked bodily changes of feeling, choc, or upset take place. Suddenness of reaction, poor coordination of muscles, and vaguely perceived sensations of impulses, derived through the autonomic nervous system, have been regarded as criteria of emotionality.⁴⁰

The study of mimetic movements in America is connected with the names of a number of investigators who aimed as minutely and as accurately as possible to describe the facial expressions corresponding to specific emotions, to explain these expressions in terms of the muscles involved, and to compare the judgments of emotional expression passed by observers under controlled conditions. For this study Dunlap⁴¹ has suggested the name *Idoscopy*, and its limits he has defined as "the facial signs of personality," i. e., "the contours of facial features as indicated by the 'lines' which appear, sometimes with the face in repose but more often and characteristically when speaking, laughing, or otherwise acting so that the face moves."⁴² In accordance with a suggestion made by Bühler,⁴³ Dunlap has held that many enlightening facts would result from the attempt to sketch facial patterns and gradual changes in them as "lines" appear. The attempt made by Boring and Titchener,⁴⁴ by the addition of simple lines of expression, to arrive at what Piderit had called "the geometry of expression," may be considered in keeping with the general trend of Dunlap's discussion.

Originally mimetic movements were studied with reference to the expression of sentiments and emotions only. Thus it was noted that "to look at a person with contempt is to say mimetically, 'I can't stand your odor.' To look at him with loathing is to liken him to an intolerable substance which one is about to vomit." Later the more precise aspects of facial performance were investigated, and an attempt was made to get a more definite description of what took place when the face responded to contact; and how it took place. The position and form of the lips with reference to each other and with reference to the tongue and palate have been connected with "sweet" and with "sour" expressions of the countenance. The raising of the brows and wrinkling of our foreheads as a sign of surprise or doubt (doubt being a kind of internal surprise), winking as a reaction to insults, and similar "emotional gestures" have also been discussed.⁴⁵

It has long been known of course that certain mimetic postures and movements might be in evidence in spite of the lack of any ascertainable emotional accompaniment. In anhedonia the lack or decrease of visceral sensations is marked, though the motor element, *i. e.*, choc, etc., is obviously present. There are cases in the literature in which there was utter lack of feeling while the outer features of emotion were present; that is to say, there was crying, blushing, or laughing, but a complete lack of corresponding affect. This has been established also in cases of hunger, thirst, fatigue, desire for sleep, joy, and fear.⁴⁶ Finally, "cold emotion" effects obtained by subcutaneous injections of adrenalin⁴⁷ have shattered all doubt as to the unreliability of motor expression as a cue to "emotional states."

The most careful and most exhaustive work on the problem of correlation between muscular expression and emotional states came from the laboratory of Carney Landis.⁴⁸ This investigator set up carefully controlled situations with the aim of testing, by exposing different individuals to the same or similar stimuli, the relation of emotional experiences to coincidental verbal responses and movements of the subject's face, head, and neck. In spite of the effectiveness of the stimulation and the ingenious techniques employed, Landis and his associates could not find any reliable coefficients of correlation. The criteria of emotionality found by Landis seem to be contingent on the use intended for them, and so he concluded that there are no criteria uniformly indicative of emotionality, for emotional expression is neither uniform nor possible of generalization as to type. These results were confirmed in the experimental work of Langfeld, Ruckmick, Feleky, and Sherman,⁴⁹ who tested the judgment of observers of emotional and appetitive responses to photographs, moving pictures, and concrete situations, and found it very largely unreliable. Recently Frois-Wittman⁵⁰ attempted to determine the relation of judgments of facial expression to each other and to the muscles involved, and the relations of the several features of the face to each other, in order to discover what factors affected differentiation of conventional facial expressions by observers. He found 32 modal patterns of judged expressions. The significance of a given muscular involvement, however, he found to be not constant but relative to the rest of the pattern. This result is therefore in agreement with that obtained by the Landis group.

Floyd Allport has extended the study of mimetic expression to include some of the commonly recognized postures of the other organs of the individual, if not indeed of the organism as a whole. This approach, so suggestive of Kempf's, differs from it importantly in the interpretation of the symbolism of the data, in degree of objectivity, and in point of social reference. The position of the hand, held vertically in front of the body with palms drawn inward, Allport has pointed out, is commonly taken to be a "religious expression." The palms in a forward position, in front of the chest, and the fingers joined, are interpreted as the expression of repulsion or of command for silence. Hands held lower, with palms forward and downward, and fingers spread, express amazement. So too a cringing figure, with head and eyes lowered signifies obsequiousness, just as a "sweet," smiling expression, with lowered head and upward glance, signifies coquetry.²¹ Thus, in Allport's interpretation, mimetic responses are characteristic movements which have become patterned in given groups to express certain kinds of attitudes and emotions and which, when discovered in an individual, are ascribed a conventional meaning. When thus interpreted, these responses undoubtedly gain in objectivity what they may conceivably lose in symbolism. The emphasis placed on the cultural origin of mimetic responses is however very vital.

An attempt to point out the subtler meanings inherent in mimetic responses was recently made by Queen²² in connection with an investigation of the processes involved in the interviewing of clients of social agencies. Queen analyzes the interview into (a) conversational gesture, (b) dialogue, and (c) thought processes. He admits that they all overlap in that they enter into every situation and can be analyzed with difficulty. The first of these divisions, with which we are especially concerned, he subdivides as follows:

CONVERSATION OF GESTURE (QUEEN).

A. Voice:

- | | |
|-------------|----------------------------------|
| 1. Pitch | } Inflection, modification, etc. |
| 2. Speed | |
| 3. Volume | |
| 4. Stacatto | |
| 5. Legatto | |

B. Facial Expression:

1. Smile or laugh.

2. Frown-wrinkled forehead.
 3. Tenseness.
 4. Eye:
 - a. Direction of glance.
 - b. Shifting, steady, or staring.
 - c. Contracting or dilated.
 - d. Raised or lowered brows.
 - e. Bright or dull.
 5. Color:
 - a. Flushed.
 - b. Pale.
 6. Nose.
 7. Setting teeth.
 8. Biting lip.
- C. Bodily Attitudes :
1. Tense or relaxed.
 2. Upright, leaning, or stooped.
 3. Steady, trembling, or fidgeting.
 4. Breathing :
 - a. Speed.
 - b. Depth.
 5. Heart-beat :
 - a. Speed.
 6. Perspiration.
- D. Pantomimic Gestures :
1. Shrugging shoulders.
 2. Stamping foot.
 3. Pounding.
 4. Pointing.
 5. Patting on back.
 6. Caressing.

Much of this information dependent as it is on instrumentation for adequate diagnosis cannot be classed with some of the information presumably available to the onlooker. Many of these facts also are meant to serve, so far as Queen's purposes are concerned, for the determination of guilt or guiltlessness, which presupposes subjective bias of a definite sort. Many of the responses are so closely interwoven with the conversation and one or more types of responses as to be hardly distinguishable from the total reaction-complex or indeed from the total situation and its interpretation by both onlooker and actor. Above all, the interpretation implied here hinges on the conventional judgments applied to human gestures

and emotional expressions which are standardized and have rather apparent, if any, significance as human action.

There are two reasons why the study of mimetic movements was neglected until recently. First, the discovery by charlatans that muscle movement is a guide to conduct and even a source of income has cast this phase and related phases of human life into disrepute before psychologists had given themselves an opportunity to investigate the nature of the charlatans' claims. Second, verbal language, in human society, is not only a more efficient but also a more evident medium of communication, and the approach, in the social sciences at any rate, has been from the more obvious to the less obvious aspects of human behavior. When the study began in earnest, it began as an attempt to correlate subjective meaning with objective movement taken to be symbolic of that meaning.

The investigation of mimetic expression in emotional states, of bodily attitudes following socially-conditioned patterns of expansion and contraction, and finally of the conscious interplay of words, pantomime, and gesture in social interaction have contributed to the understanding of the value of unspoken language in human conduct. The chief difficulty in the utilization of the data obtained seems to have been the dependence of their interpretation on the private judgment of the observer. When so dependent, the results are bound to lack in both objectivity and precision. Another difficulty has been found to lie in the inability of observers to distinguish between muscle movements accompanied by certain types of emotional or verbal functioning and such as are not so accompanied. The fundamental difficulty however lies in the inevitable assumption of a psycho-physical parallelism in human action which, instead of promoting, hinders the cause of research. For physical manifestations, so-called, when severed from the more direct experience of the individual, immediately lead to precipitate conclusions and causal sequences which, upon careful analysis, reveal the possibility of at least occasional error. The transition however from the desire to correlate subjective states with facial "lines" to the desire to understand bodily attitudes, and finally, to the implied necessity of examining whole situations in terms of the processes and relations entering into them, may be considered a sign of progress in this field.

MEASUREMENT AND INTROSPECTION IN THE STUDY OF
SYMBOLIC RESPONSES: A QUEST FOR METHOD.

If the objectivists overlooked the symbolic in behavior, the symbolists tended to disregard the objective in behavior, and the students of mimetic movement—proceeding astride two saddles—were unable to reconcile the objective with the subjective. But their efforts—whether successful or not—have not been in vain. Recent publications support the contention that there is value in the work of those who would standardize and measure human behavior as well as of those who depend on qualitative norms for the understanding of human behavior.^{32a} Needless to say, these publications are considered here only insofar as they have relevancy to the topic in hand.

Working under the auspices of the child-study institute of the University of Minnesota, Olson³³ started out to discover the frequency of nervous habits in children, the incidence of their appearance in individual children, and the possibilities of their measurement generally. His study is based on a 25 minute observation, in classroom situations, of 736 children whose median age was 42 months.

Olson's unit of measurement was a "specified behavior-reaction" per stated period of time. His technique consisted in the direct observation of children at work, the recording of the number of mannerisms observed, and an attempted correlation of his results with the Woodworth-Mathews personal data sheet, the Pressey X-O test, a free-association test, a general intelligence test, and tremor and tapping as testing methods. In his direct observation work, Olson avoided classes in penmanship, music, and drill in arithmetic, limiting his inquiry to children in "their own seats doing seat-work, oral recitation, silent reading, arithmetic problems—in short any school activity in which formal obedience was not required."³⁴

An inventory of tics made by Olson before undertaking the experiment resulted in the following classification:

TICS (OLSON).

1. Oral:
Sucking thumb, sucking fingers, biting nails, protruding tongue.
2. Nasal:
Picking nose, scratching nose, wrinkling nose.

3. Manual:
Picking fingers, writhing hands, clenching fists.
4. Hirsutal:
Pulling and twisting hair, scratching head.
5. Aural:
Pulling ear, picking ear.
6. Irritational:
Scratching body.
7. Ocular:
Rubbing eyes, blinking eyelids, winking.
8. Genital:
Manipulating genitalia.
9. Facial:
Grimacing, twitching muscles.⁸⁵

Proposing to study "any movement that any writer would designate as a tic," and being interested "in measurement and not in a differential diagnosis of the types of spasmodic disorders,"⁸⁶ Olson tried to get an answer not only to the question: Is the child nervous? but also to the question: How nervous is he? With this aim in view he concentrated on one particular kind of tics, namely those which, under his classification, were termed "oral." This he did on the presumption that, from the point of view of reliability and validity, this habit would permit of as adequate an approach as any other to the collection of statistical data on the subject.

Olson accepted Cameron's definition of a tic as the "constant repetition of an action which was originally designed to produce some definite result, but which has become involuntary, habitual, and separated from its original meaning."⁸⁷ He quotes also other writers who agree that the presence of a tic is, "in some degree indicative of neuropathic predisposition."⁸⁸ As to the origin of tics he quotes approvingly to the effect that strained muscles, tight neckbands, ill-fitting coats, coughing, facial neuralgia, cold sores, decayed or erupting teeth, adenoids, phimosis, adherent prepuce, intestinal parasites, etc., are causally related to tics. In fact, he refers to Walsh and Foote⁸⁹ for authority to the effect that "almost any normal movement may, in nervous children, come to be repeated so frequently as to become a tic." Toward the latter part of his study Olson offers experimental data based on a small amount of work with animals, intended to show that tics can be produced as a result of artificial stimulation.⁹⁰

The reliability, constancy, and validity of Olson's measurements are beyond dispute. He established interesting criteria for the distribution and incidence of nervous habits in children, and made an effort to discover the genesis of these habits. If he failed in this effort, he did so for the reason that no rigidly behavioristic methods such as he employed, devoid of all sympathetic and symbolic interpretation can succeed in this regard. Of course, he himself admits that "the results do not give a basis for anything more than speculation concerning the *why* and the *how* of the relationship(s)" discovered.⁶¹

A very competent study which has recently added itself to that of Olson is that of Jacobson, known as the exposition of his principle of "progressive relaxation."⁶² Jacobson is not a behaviorist in theory, but the method which he announces in his study borders on the behavioristic. For Jacobson conceives of mental process not only as cerebral activity but, for purposes of experimentation surely, as efferent muscular changes which are subject to precise measurement by fluoroscopic, graphic, and other methods. To this extent Olson and Jacobson have much in common.

As a result of his fundamental assumption that mental process is as much efferent as afferent and central, Jacobson holds that mental activity diminishes as muscular relaxation progresses. Neuroses therefore are characterized by chronic failure to relax, but symptoms of hypertension can be observed in "persons who ordinarily would not be called 'nervous'" as well as in neurotic or psychopathic patients. Heightened neuro-muscular tension, on the other hand, he explains as due to the increased contraction of both striated and smooth muscles with "correspondingly increased impulses in their afferent and efferent nervous supply."⁶³

Such movements as are characterized by irregularity of respiration or pulse-rate, increase of tendon reflexes, increase of mechanical muscle-excitability, spastic conditions of smooth muscle (such as spastic colon or esophagus), tremor restlessness or volubility involving the skeletal muscles (as in wrinkling, frowning movements of eyeballs, shifting of head or limb or finger) he regards as typical symptoms of nervous hypertension.⁶⁴ But this may be either moving or tonic in character; the first consisting in changing muscular contractions and the second in a condition of moderately sustained contraction.⁶⁵

The chief point in nervous conditions, according to Jacobson, is that they are chronic residual tensions and strains left in the individual as indices of incomplete experiences. Tensions are defined as muscular contractions arising in the unstriped muscles, through the autonomic nervous system, as a result of percepts or images; and strains as contractions of the skeletal muscle-system arising as a result of overactivity in joint or tendons. Tensions, then, as well as strains, are muscular contractions which cannot come into being without the striped muscle-system and can therefore, to an extent, be controlled by the same system. This is proved by the fact that imagery, attention, recollection, thought, and emotion all diminish with the relaxation of the skeletal muscles.

Jacobson's theory of treatment is that all left-overs in experience constitute strains and tensions which are wholly or in part dependent on the striped muscles of the body and which can be removed by the general relaxation of these same muscles. Jacobson uses neither free-association techniques nor suggestion. In other words, he avoids both psychoanalytic and hypnoanalytic procedures. His service in a given case consists merely in the observation of the objective signs of nervousness or restlessness previously set forth, and in guiding the patient in locating, through introspection, the sources of his tensions. In this way the subject is given insight into the mechanisms of thinking as well as into the meaning of his mental experiences, *viz.*, images or neuro-muscular tensions. The *meaning* of the tension located Jacobson considers essential to its relaxation.

More specifically, Jacobson's "autosensory examination," as he terms his technique, consists in teaching the patient to identify the locus (such as the temporal region, the throat, the chest, or the abdominal region) of his tension; to describe his sensations and images; to verbalize the goal or function of the muscle-tension experienced; and to relax inwardly and outwardly by gradual exercise until all tonicity disappears. Exercise of this type consists in the flexion or extension of hands and legs, smiling, rounding lips to say "O," protruding tongue, retracting tongue, closing jaws tightly, swallowing, etc. The aim of the whole procedure, in brief, is to teach the subject to discover that his muscles are tense, to judge whether or not he is relaxed, to realize that he should relax, and to teach him to relax. Relaxation, whether general or local, is

recognized as complete when it proceeds, as Jacobson puts it, "to the zero point of tonus."

Olson's application of the behavioristic method to abnormal behavior shows that interesting data of a statistical character may be obtained with regard to how often habits of an automatic sort may be observed in individuals. Of course, statistics cannot become a substitute for the introspective method, and so must leave a number of problems unsolved—problems, that is, whose solution is crucial to the understanding of the mechanisms of behavior involved. The use of sympathy and imagination is essential for such understanding. "The use of sympathy and imagination is becoming more competent while statistics is being substituted for guesswork in the manipulation of data," as Cooley puts it,⁶⁶ but neither can supplant the other.

The chief value of Olson's study lies therefore not in its objectivity which—in certain instances, is more of a drawback than a help—but in its attempted accuracy of measurement and in its frank and clear discussion of the results obtained. It failed manifestly in its avoidance of the meanings of the acts observed and in its neglect of the subjective sources, and the genetic processes involved in the formation, of certain types of muscle movement. The undeniable reality of subconscious activity, of the severance of conscious from subconscious or unconscious activity, and of the symbolic nature of human acts cannot be denied so long as these remain the only tools of approach to the definition of the mechanisms involved in at least certain types of human behavior.

Nor is this the only shortcoming of Olson's work. An examination of human behavior avails one nothing if one confines himself to an isolated portion of the organism on the theory that the organism is a system of conjoined but independent parts. To speak therefore, as Olson does, of the twitching of the nose as a specific conditioning of that part of the organism, persisting in and out of season, at regular intervals, as a result of previous irritation, is not only misinterpreting the goal of natural science but is to commit a fallacy which—as is patent in Olson's own study—in the end leaves one without any tangible results.

Jacobson has had too much experience in the actual treatment of human difficulties to be guilty of an unalloyed behaviorism. Like

the analysts, he realizes that the activities taking place on the conscious and those taking place on the subconscious level can be distinguished both physiologically and introspectively, and for that reason must be reckoned with. Like Olson, he insists on the application of statistical methods and physiological apparatus, wherever possible, to establish ranges and degrees of muscle movement; but he cannot divorce introspection from actual observation, realizing that these are two aspects of the self-same process, not parallel to, but continuous with, one another. His technique therefore is based on the use of observed data treated so as to aid the individual in inquiring into his own sensory-motor processes. To this extent Olson's and Jacobson's studies may be said to contradict, rather than to supplement, each other. Where they agree is in the treatment of the organism as a system of independent loci which may be isolated and approached by the subject with reference to the general state of the organism or the condition of other loci. Here Jacobson, like Olson, yields to a bias which is characteristically physiological."

The chief value of Jacobson's study consists in the attempt to study human behavior from the uncommon vantage-point of the observer taking notes on the trained introspectionist at once experiencing and observing his own movements. Jacobson's insistence that, unless the meaning of his movements is apprehended by the experiencer, the resolution of his unfinished acts or tensions is without hope is also significant. An additional contribution may be found in Jacobson's attempt artificially to create certain gestures and postures on the part of the patient with the view to securing from him an introspective account of what he experiences while thus performing. The chief defect in Jacobson's work lies in what may be called the "summational bias" which obscures the view that the organism is a system of inter-related functions which never occur in isolation from one another. This makes his work appear at times as an attempt to secure the relaxation of the neck or of a hand as such, and his method of treatment as an approach to the symptoms of, rather than to the causal processes beneath, certain objective muscle movements. In reality, Jacobson probably achieves his purpose without suspecting that his theory and his approach are virtually at variance with one another.

A NEGLECTED PHASE OF SYMBOLIC EXPRESSION.

The study of reflex movements has led to the identification of some forms of behavior which are present in the infant. Its aim however was not to determine the "original nature" of the human individual, *per se*, but to posit some rules of learning and personality development on the basis of this "original nature." To a certain extent this has proved successful—perhaps more successful than the behaviorists, in view of their methodology, might have expected. Happily, the environment of the infant and the receptivity of the infant to its environment are both limited. Excepting the artificial stimuli introduced by an experimenter on this level, the environment may operate uniformly enough to maintain a constant ratio (a fairly steady equilibrium) between itself and the young organism concerned. When the rigid concepts of the behaviorists are applied on the adult or adolescent level, they prove relatively insufficient because of (a) the impossibility of eliminating chance variations in the experimental situation due to the greater complexity of the situation and (b) the greater receptivity of the organism and the richness of the individual's apperceptive mass evidenced by the variety of connotative symbols which the individual can bring into play in a given situation.

The study of twitchings and postures symbolic of what Freud has called unlive-out-able wishes, as approached by both hypnoanalysts and psychoanalysts, in the abnormal field, has yielded a rich crop of knowledge relative to human nature. Without a doubt, the students of abnormal behavior have looked farther and seen deeper than any other group of psychologists. These men, observing human nature in its most obvious form, developed something of a penchant for the bizarre, the incoordinate in human conduct. Moreover, their inability to approach their subjects, very often, through verbal media has forced them to observe and attempt to interpret muscle movement. Even where introspective verbalization is being asked for, as in the case of neurotic and psychoneurotic patients, they nevertheless found a great deal of value in observing involuntary movements and permitting their patients to profit by them." The insights obtained as a result had necessarily to be colored (if not masked) by the investigator's own experience; but no other way seemed open; and withal they claimed, often with a logic that

was irresistible,* as much objectivity for their procedure as was manifested by students employing other procedures in the science of psychology.

The field of facial expression and general body mimicry presents an inexhaustible list of possibilities. With the exception however of the latter aspect of this field, the results obtained have been either extremely obvious or extremely dubious. Psychologists have done no more than write down what the common sense of the average person had long dictated; or else, they have attempted to study the behavior-facts which require other methods of approach than those employed. No exact measurements or studies of patterns, such as Dunlap has suggested, could so far be attempted; and even such approaches as Allport and Queen have employed are as yet in an embryonic state.

The work of Olson and Jacobson recommends itself highly to the taste of those who would see natural-science method applied to the study of human beings. But this same taste revolts against any restrictive regulations imposed on methodology by theoretical considerations. Both these students have shown that the same objectivity may be applied in the study of minute muscular movements of human beings as in the study of other human and non-human phenomena, but in so doing they displayed a theoretical fractionalism—and, in Olson's case, a disregard for the symbolic in human action—which could not but vitiate the results obtained. Both these contributions should however be accounted contributions to method rather than to theory, for their findings as such are neither additions to nor, so far, improvements on what we know of the genesis of human conduct in any of its forms.

It is from the theories and methods applied to the speechless infant and the disorientated, inarticulate abnormal, and from the common sense observations of the average citizen, that we propose to pass to a somewhat different consideration of the unspoken gestures of human individuals, manifested in their daily conduct. These are taken to be unlike the movements of the infant in that they represent a stage in human development profoundly influenced by custom and personal experience. They are unlike the activities of the abnormal in that (if often equally incapable of verbal substitutions) they are subject to analysis and discussion and are not destructive of the remainder of the individual's system of

activities. Also, they are unlike the integrated emotional and postural significations which carry recognized meaning to the average person in that they are not commonly understood or indeed even noticed.

Though equipped with the information available from current sources, the writer has been for some years puzzled by the automatic, fleeting, apparently irrelevant, *occasional* responses of men and women, observed under a variety of circumstances. With the end in view that some day he might organize his material, the writer began to collect instances of unusual conduct of apparently normal individuals—unusual, that is, to the extent that they seemed to be departures from the stream of conversation carried on, unnecessary to the activity engaged in, and without any apparent motivation so far as could be immediately discovered. The list of gestures collected appears at present as follows:

SYMBOLIC GESTURES OBSERVED IN NORMAL SUBJECTS.

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|---------------------------------------|--|
| 1. Adjusting glasses. | 23. Cracking joints. |
| 2. Air-sucking (lip-corner movement). | 24. Crossing legs. |
| 3. Back-slapping. | 25. Dragging-foot movement. |
| 4. Back-stepping. | 26. Drawing nasal secretion into mouth. |
| 5. Belching. | 27. Displaying teeth. |
| 6. Bending matches. | 28. Drooping eyes. |
| 7. Bending toes upward. | 29. Dropping objects. |
| 8. Biting lips. | 30. Extending arm. |
| 9. Blinking eyelids. | 31. Fidgeting. |
| 10. Blowing through lips. | 32. Finger-drumming. |
| 11. Blowing up cheek. | 33. Finger nose-wiping. |
| 12. Blowing through nostrils. | 34. Fixing hair. |
| 13. Blowing nose. | 35. Flexing arm. |
| 14. Bottling lips. | 36. Flexing arm with finger pointing to oneself. |
| 15. Breaking matches. | 37. Gaping mouth. |
| 16. Brushing hands. | 38. Giggling. |
| 17. Chewing pencil. | 39. Glancing skyward. |
| 18. Cleaning nails. | 40. Glancing at hands |
| 19. Clearing throat. | |
| 20. Clenching fist. | |
| 21. Clucking. | |
| 22. Coughing. | |

41. Grasping object (hat, pocket-book, etc.)
42. Grinding teeth.
43. Grinning.
44. Grunting.
45. Hissing.
46. "Hm"-ing.
47. Hiccoughing.
48. Humming.
49. Inserting hand or finger into fist of other hand.
50. Jerking hands.
51. Kicking foot-movement.
52. Leaning against wall or object.
53. Leaning on chair or table.
54. Lifting-skirt movement.
55. Lifting trousers.
56. "Making up."
57. Making sucking or smacking sounds.
58. Manipulating genitals.
59. Manipulating outside objects.
60. Manipulating personal objects (tie, etc.).
61. Massaging abdomen.
62. Moving ring up and down finger.
63. Munching.
64. Nodding head.
65. Opening and closing object.
66. Passing gas.
67. Patting abdomen.
68. Patting person, animal or object.
69. Pausing.
70. Picking ear.
71. Picking nose.
72. Picking finger.
73. Placing non-edible objects in mouth.
74. Placing foot on supporting object.
75. Placing tongue in cheek.
76. Plucking fingers.
77. Plucking hairs from nose.
78. Plucking hairs from brows.
79. Protracting lower jaw.
80. Protruding tongue.
81. Pss-ing.
82. Puckering lips.
83. Puffing.
84. Pulling ear.
85. "Pulling" down clothes.
86. Punching paper.
87. Pushing finger through button-hole.
88. Pushing ring off finger.
89. Raising eyebrows.
90. Regurgitating.
91. Retracting tongue.
92. Rising (rhythmic) on toes.
93. Rocking.
94. Rolling up sleeves.
95. Rolling eyes.
96. Rolling head.
97. Rolling paper.
98. Rotation of hand or palm.
99. Rubbing eyes.
100. Rubbing thighs.
101. Scratching hands.
102. Scratching fingers.
103. Scratching forehead.
104. Scratching nose.
105. Scratching legs.
106. Scratching head.
107. Setting teeth.
108. Shaking foot, knee, or toe.
109. Shrugging shoulders.
110. Shuddering.
111. Shutting lips with finger.
112. Sighing.
113. Sizing-up eye movement.

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|---|---|
| 114. Smiling. | 138. Tapping out rhythm of melody. |
| 115. Smoothing clothes. | 139. Tearing (crying). |
| 116. Snapping fingers. | 140. Tearing paper. |
| 117. Sneezing. | 141. Tearing skin off fingers. |
| 118. Sniffing. | 142. Throwing chest forward. |
| 119. Snoring. | 143. Throwing-off coat motion. |
| 120. Spitting (convulsive). | 144. Tickling. |
| 121. Spitting (with tip of tongue). | 145. Touching things. |
| 122. Spreading fingers. | 146. Turning aside. |
| 123. Squatting. | 147. Twisting foot. |
| 124. Squatting-rising movement. | 148. Twisting hair. |
| 125. Squinting eye. | 149. Twisting head. |
| 126. Stomach growling. | 150. Twitching mouth. |
| 127. Stretching. | 151. Wetting lips. |
| 128. Stroking beard, head, or mustache. | 152. Wiping eyes. |
| 129. Sucking finger. | 153. Wiping nose. |
| 130. Sucking gums. | 154. Wiping lip-border. |
| 131. Sucking lips. | 155. Wiping objects. |
| 132. Sucking tongue. | 156. Withdrawal of sacrum (sitting motion). |
| 133. Stuttering. | 157. Whistling. |
| 134. Supporting face with hands. | 158. Winking. |
| 135. Swallowing saliva (gulping). | 159. Wrinkling nose. |
| 136. Swaying of buttocks. | 160. Yawning. |
| 137. Switching (turning) lips. | |

Most of the responses listed will be recognized as ordinary responses of human beings familiarly connected with such activities as going to sleep (yawning), "colds" (coughing, sneezing), the disposal of surplus saliva or dryness in the throat (swallowing), fatigue (crossing of legs), etc. It is true that many of these responses—whether mediated by the autonomic or by the central nervous system, and the corresponding musculatures—have meaning as aspects of certain physiological states in which the organism receives expression, and in connection with these states are conveniently recognized as "usual" or "normal." When however a person indulges a gaping yawn while talking about a prospective sale; when he crosses his legs while addressing his friend on the street; when he coughs haltingly into his fist in the presence of his employer who is explaining why he cannot allow him an increase in salary; when he sneezes in the presence of his rival who had just made a brilliant remark; or when he gulps down a stream of saliva in the face of an unfavorable accusation, his automatic responses—

the writer submits—must be clothed with meaning other than that which common sense dictates.

It was when the writer attempted to give the responses recorded some sort of technical meaning that he met his first difficulty. Several ways of classifying them lay open to him, but all seemed severally deficient. The first classification included involuntary movements of an occasional, as well as those of a more stable or habitual, sort. This was at once rejected as unsatisfactory because implying that neurotic tics and choreic movements would come within the purview of the paper. Another basis of classification then suggested itself in the form of the anatomical divisions of the human organism involved in one gesture or another. When completed, this classification appeared as follows:

AN ANATOMICAL CLASSIFICATION OF GESTURES.

1. Cranial (facial: including forehead, eye, nose, mouth).
2. Cervical (neck and shoulders).
3. Thoracico-lumbar (upper trunk).
4. Sacral (lower trunk).
5. Appendicular (arms and hands, legs and feet).

The chief defect of this classification lay in its artificiality. No part of the organism is singly concerned in the execution of a human act. This was especially clear in the case of such responses as sighing (cervical or thoracico-lumbar?), turning about face (though the muscles of the shoulders are the first to come into a state of tension, is it not as much an activity of every other part of the organism?), etc. Some responses, like pausing, seemed altogether impossible of classifying. But the most serious of all objections was its meaninglessness from the point of view of the symbolic interpretation here attempted.

The next classification was constructed from the point of view of the type of muscular activity involved; that is to say, from the point of view of physiology. From this standpoint it seemed promising to divide up the responses into the following categories:

A PHYSIOLOGICAL CLASSIFICATION OF GESTURES.

1. Simple, automatic gestures.
2. Seriated, or compound, automatic gestures.
3. Postural states.
4. Chronic systematic movements.

The first of these concepts was intended to include simple automatic movements of the type sometimes called reflex.⁷⁰ The second concept was applied to cases in which the movements were uniformly repetitive, simple movements of the type known as circular or of the type called antagonistic. The third concept referred to responses in which the organism as a whole was markedly involved (chain reflexes or postural reflexes). The last of these categories was meant to signify those responses which were organized aside from the individual's otherwise well-oriented existence, and were carried on as symbolic activities either on stipulated occasions or in special situations. This again did not seem satisfying. It was evident that a classification of this nature contained no incisive distinctions between the categories included. The chief objection to it however was that it did not assist in the interpretation, in clarifying the meanings, of the gestures classified. Unless the classification does so, it hardly justifies its purpose.

Subsequently the writer developed a system of concepts, functional and psychological in nature, which seemed to serve the purpose mentioned but, being largely *a priori* and introspective in nature, lacked the validity which is derived from a systematic study of a considerable body of data under as uniform conditions as possible. Similar attempts, in related fields, have however been made with more self-assurance. Pfister's, Kempf's, and Olson's classifications have been quoted. White's system⁷¹ embracing identification, displacement, sublimation, transference, introjection, projection, rationalization, substitution, and symbolization may also be mentioned. Hulsey Cason⁷² has recently discussed "common annoyances," including a great variety of objects and activities, studied by means of a rating technique in terms of a ninefold scheme, *viz.*, unpleasant associations, interference with pleasant activity, opposing egotendency (defense, overcompensation), identification, regression, undue familiarity, *i. e.*, violation of private sanctum, discards from the body, inherited tendencies (discords in music, cats howling at night), and lastly, customs, conventions, and taboos. Even this classification, more *reliable* perhaps than any so far offered, cannot be said to be *valid*.

The understanding of the gestural responses listed is contingent, from a psychological point of view, on a statement of the relation between perception and meaning; the nature of symbolism, the

relation of the gesture to the immediate situation, on the one hand, and to preceding situations, on the other; and finally, the relation of the gestures involved to the general problem of personality development. In an ultimate sense, however, the proper interpretation of any aspect of human conduct depends on a valid method of investigation. To these several questions the closing sections will be devoted.

THE SYMBOLISM OF GESTURAL RESPONSES.

White states that "The mechanism whereby one object is used in place of another to express a given meaning or stand for a given situation is the mechanism of substitution and the object or idea so used is spoken of as the symbol of the one displaced."⁷³ If we accept this, we do not do so with the understanding that symbols are ethereal entities which have no reality in fact, which cannot, that is to say, be objectively investigated and used for purposes of prediction and control. The objective nature of symbols depends on their accessibility to a knower. To quote G. S. Hall, "Epistemologically speaking, no one can know what he does not objectify."⁷⁴ Symbols too must be objectified in order to be known.

There are two ways in which symbols become knowable: first, in the form of conscious phenomena serving the purposes of communication with others—that is to say, in the form of words employed between persons in a social situation; and second, in the form of subconscious phenomena (which, like conscious phenomena, are reactions of the organism as a whole, mediated by the lower centers of the nervous system instead of by the cerebral cortex) used in an automatic way for autistic, or self-communicative, purposes. It must be remembered that even when a symbol is not directed to an objectively present situation, it is directed to one subjectively present.⁷⁵

There is another sense in which symbols may be said to be knowable and objective. Symbols possess meaning, in a situation. Meaning is neither a particular object in a situation nor yet our consciousness of such an object, but a *direction* of movement, an attitude expressive of a relationship perceived by the actor. In the last analysis then the meaning of a situation, as represented in a given symbol, is the attitude which we have toward a relationship.

Generally speaking, the relationship on which the attitude is based is perceived through verbal equivalents which define them, *i. e.*, through linguistic symbols. Some relations could not be clearly perceived if it were not for word-symbols. Consider such relations as loyalty, emulation, dominance. A word-symbol acts as a control insofar as it evokes certain attitudes to the relations connoted by the word or name. But it is the attitude and the resulting movement that represent the objective confirmation of the relation perceived. These are the relation actualized.

An attitude emotionally charged and divorced from word-content has been termed a complex. When a complex becomes expressed it does so symbolically. For there is a vast field of symbolic expression in which words play no immediate rôle. In fact, it is because words do not and cannot take their place, or even accompany them, that they exist. According to Pfister, this type of expression depends on two things: "the inhibition in the present and the regression into the recent or ever more remote past (infantilism) in order to gain autistically favorable perspective for the future."⁸ What Pfister overlooks is that the situation in which the actor acts is not altogether inhibiting, or there would be no question of the appearance of the emotional attitude or complex. Something in the immediate situation must touch it off in order for it to "objectify itself."

A symbol thus always has some local or immediate reference to an existing situation. But that is merely where the symbolic act begins. The object, person, or word perceived in a certain relationship is differentiated by the actor from the existing situation and referred to a pre-existing attitude which gives it meaning. The immediate stimulus is thus a *sign* or signal of another relation of which the objective behavior of the actor may be said to be a *symbol*. Just as the cue or sign abstracted from the situation is symbolic to the actor of a past situation into which it is assimilated, just so his gesture is symbolic to us of the past situation to which he referred the sign or cue.

The uncanny tendency of gestural behavior to appear apart from the original situations depends on the redintegrative nature of the process of perception,⁹ and on its relation to the individual's experience or apperceptive mass. Of course, ordinary perception is dependent on some cue from which the actor can reconstruct the

total situation. Integrated responses to partial aspects of situations are thus normal phenomena, normal starting-points in perception, unless the responses made do not have the objective reference—in brief, unless the responses are irrelevant to what is going on and are merely autistic in nature. When that is the case, the responses may appear bizarre to the onlooker and without meaning to the actor, the difference being only that the first is conscious of the irrelevant nature of the responses while the actor is not similarly favored.

To illustrate what is meant here we may do well to draw on the richer field of verbal symbolism. Though we are not here concerned with the latter, even in its “blundering,” subconsciously motivated aspects, yet we may use one case to show the applicability of the analysis just made to another form of behavior *on the same level*.

The head of a department, anxious to exchange his position in a college located in an urban environment for one located in the country (motivation is not of immediate importance here), invited a member of his department to assist him in compiling some statistics. The man assisting called the numbers from slips, and the head-professor entered them on a tally sheet. When, among other figures, number 2 was called, the professor carefully (as was his habit) set down number 5. When noticed by the assistant, the error was promptly rectified. When the same number was called two more times with the same result, the professor—somewhat exasperated over the situation—fairly shouted: “You mean *t-w-o*?” Upon receiving an affirmative reply, he entered the correct number, and ceased making the error.

This might have been left unexplained had it not been for three facts: first, the professor's wife had told the man in question a week or two previously that both her husband and she were anxious to remove to a certain town nearby, and that she would prefer a small frame house to her splendid brick house in the city; second, just before undertaking the statistical task, the professor told his assistant that he would fain leave the college with which he was connected but felt too old to make the change; and third, a course in rural society, officially styled *THE COUNTRY*, and carrying number Five had just been added to the department's list of courses. This latter fact was particularly important because of the impression which the addition of the course made on the professor who was much concerned about the expansion of the work in the department, and who habitually referred to his courses by number. The symbolic sequence thus worked out was: Given stimulus *To* (No. 2), the response automatically presents itself in the veiled form of *THE COUNTRY* (No. 5).

The essential elements of this analysis are present in all gestural responses. Given a certain signal in a certain situation, reference is at once made to a pre-existing system of relationships of which the signal is symbolic and in which it acquires meaning. It is only through the discovery of all the factors concerned however that the symbolic nature of the *response* is obtained.

A similar case in the field with which we are more directly concerned is that of a young woman maladjusted in her family relations, who in a conversation having reference to family life, at the mention of the phrase "loyalty to husband" immediately makes a characteristic skirt-raising movement. So too a student taking a self-administering mental test develops a violent cough and has to leave the room. Upon examination it is found that she had reached the phrase "relation of time to clock." She repeats this performance when reaching the statement "The burned child dreads the fire," and also at the point where she reads "Which number in this series appears a second time nearest the beginning?" While no time was taken to trace the masked reference of these statements, they seem to possess sufficient unity to make common meaning. A girl of Catholic faith develops a violent cough in a class in which the relation of science to religion is discussed. Another girl, also Catholic, sighs deeply while saying, in an oral report before a class, that Arabic numerals were adopted because the *Roman* numerals were found to be inconvenient. One student sneezes, and another coughs almost at the same time, when somebody refers to "the glands of internal secretion" in the class room, though neither manifests a similar response throughout the rest of the hour.

Cases of this sort could be multiplied, but one more case, of a woman observed systematically over a fifteen-minute period in a college class, should be given in order the more clearly to illustrate the correlation between automatic gestures and verbal signs in a developing situation. The words or sentences immediately preceding are recorded on one side and the symbolic gestures immediately following are set down opposite to them. This is given more as a matter of technique in the study of such phenomena, and in order to indicate the possibilities of such observations, than for the interpretation of content at this stage. The observer was situated behind the subject who was unaware of the record kept.

VERBAL SIGN (BY INSTRUCTOR).	SYMBOLIC RESPONSE (BY STUDENT).
"If a detriment occurs in transmission. . . ."	Kicking foot-movement.
"Higher animals."	Turning-up movement of foot.
"Whether it has any structure or not."	Forced yawn, followed by kicking foot-movement.
"Things around which all is grouped."	Kicking foot-movement.
"How much of a rôle the political organization plays."	Kicking foot-movement.
"Whether it isn't dominated by unconscious forces."	Turning foot sideways.
"Economic organization."	Wiping eyes.
"When we think about the city, we think of concentric circles."	Wiping lips; touching marriage ring.
"How-how. . . ."	Turning-body-off-chair movement.
"Here's where people get together."	Moving up in chair; glancing at dress.
"Immediately."	Placing dull end of fountain pen in mouth and slowly withdrawing it.
"He hedges."	Placing dull end of fountain pen in mouth and slowly withdrawing it.
"To be sure that he has the price."	Crossing feet and placing fountain pen in mouth.
"Comes to point where he has to sell."	Putting pen aside; covering eyes with hands.
"Where the news comes first."	Yawning; drooping head.
"We know from experience."	Shutting lips with two fingers.
"Originally in the elementary market."	Rubbing forehead.
"Something happened down here."	Rubbing one eye.
"Where the organism is most sensitive."	Shutting lips with one finger.

Had we attempted an interpretation of this series of gestures, we might have been assisted by the knowledge that (a) this young woman was newly married; (b) she had had a previous love-affair; (c) her husband had just completed a professional course to insure himself of a good position. Yet this knowledge alone would not have been sufficient for a detailed interpretation. The genetic trends of the subject's reactional biography seem to be essential to a complete understanding of such behavior as this.

In the light of the subject's genetic history⁷ and a knowledge of the "fixation points" revealed by it, responses to signs in a

given situation acquire meaning which may be understood, verbalized, and communicated.⁸⁰ As before stated, the redintegrative partial expressions of an occasional sort are not as evident to the observer as are the tremors, tics, or speech-spasms sometimes found. The latter however, prior to a certain stage, are interpretable in terms of similar mechanisms as are used in interpreting occasional responses. That is to say, in the development of any automatic gesture we find the individual at some time confronted with a situation in which a certain element, because of its prominence or obvious relevancy to the situation, is fixated and emotionized (repressed). Thenceforth the presence of the element leads to a redintegration of the original situation in which it became fixated. When however, in the course of time, the element (sign) loses its capacity to place itself in its former relationship and re-instate the symbolic situation, we say that the gesture has become "split off" and habitual.

The line of demarcation between the normal and the abnormal, as the Freudians have insisted, is rather arbitrary. Tics and spasms are responses which are dissociated from the situational context because (a) they take their cue (sign) from within the individual and do not depend on objective stimulation; and (b) they are organized and habitized, taking place exactly in the same way again and again. The gestures here involved however are only relatively dissociated from the objective stream of interactional activities (as already noted), are always relative to some aspect of an ongoing situation, and need never be twice the same any more, if not any less, than verbal speech generally may be said to be. A typical illustration is one recently observed by the writer.

A young man waiting for a train on an elevated platform is joined by someone who engages him in conversation. Prior to the other man's appearance the subject seemed composed and apparently interested in his surroundings. As soon as he began the conversation he began also to gesture without evidently relating his gestures to the conversation. This gesturing (lifting-coat movement, scratching, etc., ceased as soon as the conversationist left.

Tics, in a case like this, would continue; and certainly organic spasms would do so.

A PROPOSED STUDY OF SYMBOLIC GESTURES.

A complete study of the gestural responses defined in this preliminary note would begin without any biases as to the motivation of human conduct, except such as have gained too general recognition to be doubtful. It would proceed systematically through the investigation of the following factors associated with each visible response:

1. The genetic trend of the individual, *i. e.*, the sequence of relations experienced by him (including his reflections on them).
2. The original (fixational) situation in which certain relations became emotionalized and repressed.
3. The original response made to that situation.
4. The specific symbolic element in the situation which became repressed.
5. The immediate situation in which the irrelevant response is evoked.
6. The signal in the existing situation employed as a cue to the pre-existing situation.
7. The symbolic gesture *per se* in relation to the organism as a whole.

These are presumably get-at-able. It is conceivable that the genetic trend of the individual should be obtained from the individual's life history giving an account of his family background (traditions, relations, etc.), his early impressions and memories, his motivations, his conflicts and adjustments, and his self-analysis. To make the subject especially suitable for such an investigation, the Thurstone personality test would be advisable. Not only would this help determine whether the subject is not obviously neurotic, psychasthenic, or psychotic, but it might even bring out some of the vital fixations of the individual.

This brings us to the succeeding items, namely, the fixational situations in the individual's developmental history, the responses made to them, and the elements singled out for repression. While the Thurstone test would be helpful in this connection, it is not designed of course to furnish such information as can be obtained more readily and more fully by the analytic technique. In order to emphasize this aspect of the study the Kent-Rosanoff test might be employed in a limited number of cases. There is a double advantage in the use of this particular test in that the stimulus-words may be used for association purposes and the results obtained may be checked against the individualization and regression scales obtained by Kent and Rosanoff.

The remaining three aspects of such a study as is here suggested, expressive of the relation between the existing and the pre-existing situation, can be obtained in fifteen-minute observation-studies of selected individuals (of whom the material previously mentioned has been obtained), in as uniform situations as possible (preferably a classroom). When the symbolic responses and the signals to which these appear to be associated are available, the Jacobson technique may be employed to test the subjects—by means of the verbal stimuli associated with the gestural responses recorded—for possible interpretations through controlled introspection. When the gestures are definitely determined, the subjects may be asked to produce them artificially, and while doing so, to introspect for the meanings of the tensions created.

It is in terms of the gestures observed and the relations emotionalized in the process of fixation that we can develop a system of explanatory (classificatory) concepts of probable diagnostic value in the study of normal subjects. A system of concepts such as this would throw considerable light on the problem of personality—its typical lines of genesis and its functioning in total situations. It would reveal the attitude of the subject toward other persons, toward typical situations, or toward himself as an object. It may bring out the type of sign-equivalents of situations which have become repressed. It may indicate the tendency to individualization or regression in a given subject. Finally, it may serve to elucidate an aspect of social interaction which is not at present understood. This, above all others, is the value of the type of study here barely outlined.

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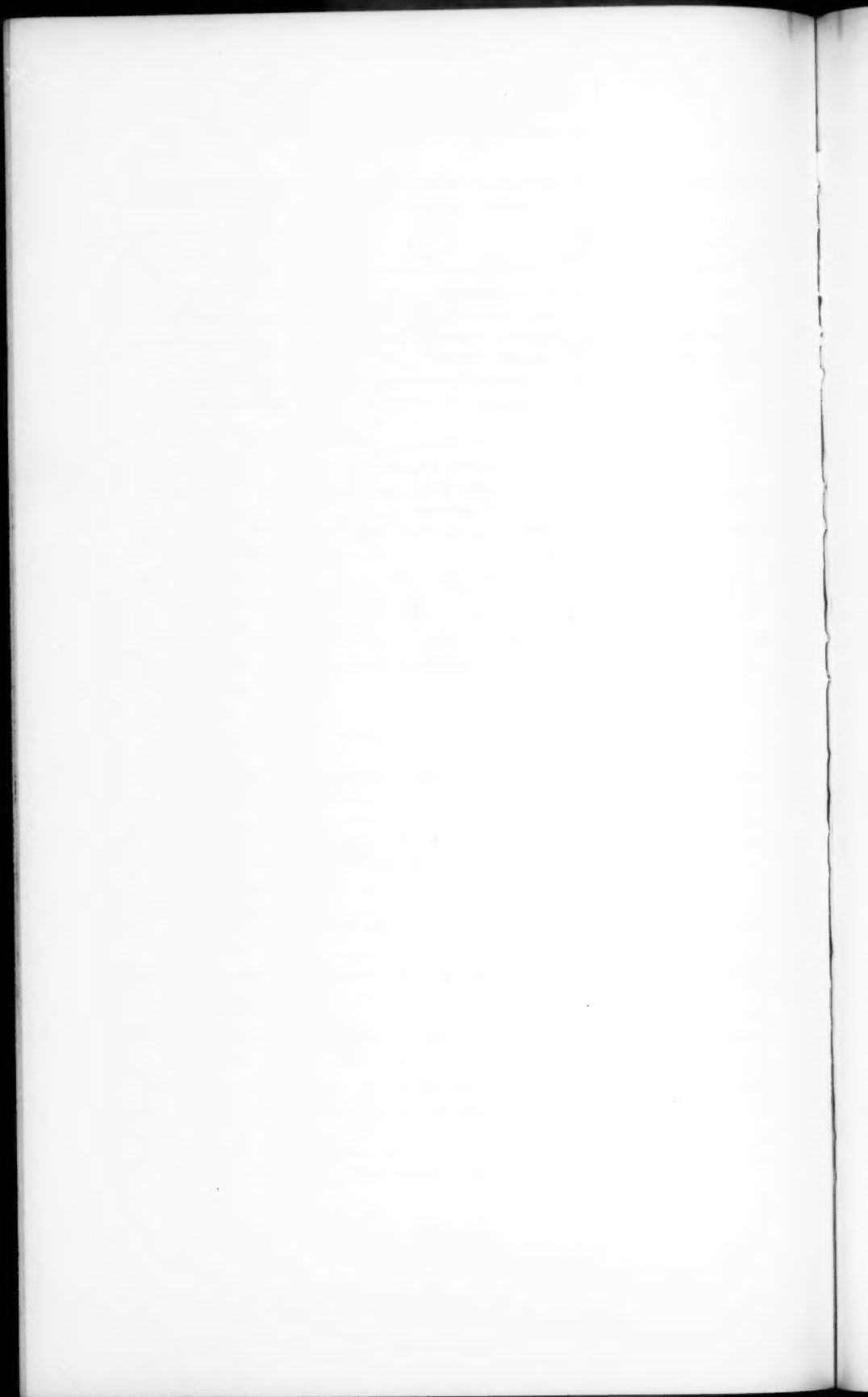
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A STUDY OF THE BEHAVIOR CHART IN CASES OF THYMERGASIA.

By HAROLD F. CORSON, M. D.,

*Late Commonwealth Fellow in Psychiatry, Henry Phipps Psychiatric Clinic,
Johns Hopkins Hospital, Baltimore; Director Mental Health Center,
The Rhode Island Society for Mental Hygiene, Providence, R. I.*

Dr. Adolf Meyer has utilized a number of types of "Behavior Charts" to be filled out by attendants or nurses as a part of the daily records. Dr. Edward J. Kempf modified the original charts and reported on the change in the *AMERICAN JOURNAL OF INSANITY*.^{*} No additional reports have been made, and this study concerns itself only with cases in the manic-depressive group or those coming under the heading of Thymergasia or Affective Psychosis. This latter term implies a more dynamic concept than that used in the Kraepelian classification. To quote from Dr. Meyer's discussion on "The Thymergastic or Affective Reaction Sets" will assist in clarifying the term:

The thymergastic (affective) reactions are characterized by a usually prolonged fixation of mood in a specific state of elation or depression, and often with swings of the pendulum from sadness and depression to elation and overactivity, or vice versa. Their coming in fairly circumscribed attacks and their being essentially affect disorders are the persistent and essential marks of the thymergastic reactions. Briefly stated, the two most clearcut types

* "The Behavior Chart in Mental Diseases," Edward J. Kempf. *The AMERICAN JOURNAL OF INSANITY*, Vol. 71, 1914-15, page 761.

"The biological principle involved in the chart is that a personality tends to expand and contract, to maintain a mean of expression, to extend its interests, psychic pseudopodia, into certain fields and to withdraw them from others, to enjoy outlets for expression and suffer inhibitions; and that for a like physiological-psychological state, this energy tends to express itself in a characteristic-like manner" (page 762).

"The author of the chart does not merely maintain that an individual has instincts to pick and rub himself, to be mute or to decorate himself with fæces, but rather holds that if an individual reaches a certain physiological-psychological state he will pick and rub himself, etc., the act being the expression and outlet of the underlying status. That is, to repeat, emotional states have characteristic outlets" (page 763).

of thymergic disorders can be described as showing: on the one hand, elation, overactivity, and a thinking disorder characterized by expansion, flight and speeding-up; and on the other hand, depression, underactivity, and a thinking disorder characterized by narrowing, dearth, and slowness or rut formation.

In a study of the behavior chart a number of clear-cut pictures are to be noted in the affective psychosis. They can be listed as follows under the general heading of manic-depressive: affective psychosis or thymergasia:

- A reaction in the form of depressive phases.
- A reaction in the form of manic attacks.
- A reaction in the form of agitated depression.
- Hypomanic type of reaction.
- Manic and depressive reaction type:
 - (a) Mixed.
 - (b) Alternate manic and depressive phases.

In the following types of reaction, the pure affective features are indicated in the chart, but as a rule there is very little that suggests the special features indicated in the more or less descriptive diagnosis:

- Affective psychosis with schizophrenic features.
- Affective psychosis with hypochondriasis.
- Affective psychosis with obsessional features.
- Affective psychosis with migraine.
- Affective psychosis with paranoid trends.
- Affective psychosis in a constitutional inferior.
- Affective psychosis in a feeble-minded individual.
- Affective psychosis with cerebral arteriosclerosis.
- Affective psychosis with stupor reaction.

The Chart and Its Use.—The behavior chart is printed on the regulation size history paper, on which the record for a month may be kept. On the left-hand side of the sheet is a list of the points which are to be checked up. At the top of the page, space is left to write in the days of the month. The page is cross-ruled, and a small square space permits daily checking of each individual item, if present, with the possibility of noting various degrees of behavior, if this is desired.

By the use of red lines running across the page, it is divided into four sections. The second section from the top includes what may be designated as normal or usual behavior. Above this in section I the excess activities or behavior of an "expanding personality"

(Kempf) can be recorded. The trends or affects to be recorded here for descriptive purposes been called "push," "anger" and "eroticism."

Below the normal behavior on the chart, in Section III, the depressive characteristics or "contracting personality" (Kempf) can be graded. As in the case of Section I, several characteristics are singled out, and here they are called "sad," "stupor" and "fear" trends. It might be said that each one of these trends in reality consists of a varying number of behavior reactions which form a single scale of the intensity to which each trend is present. It is, of course, to be assumed that normal behavior contains these trends to some degree, but it is not practical to consider Section II as divided into these six parts.

Section IV at the bottom of the page has a variety of points to be observed which have been grouped under "required behavior." Entertainment, occupation and exercise in Section IV will be considered as forming a part of Section II or normal behavior. The other points for observation in this section include sleep, appetite, weight, therapeutic measures and visitors.

Delusions and hallucinations are for convenience placed in the lowest part of Section III.

In an individual with so-called normal behavior, the chart would show:

Section I, blank.

Section II, normal behavior.

Division I:

Talkative, X.

Cheerful, X.

Smiling, laughing, X.

Quiet, X.

Division II:

Industrious, X.

Games, X.

Reading, X.

Corresponding (sometimes).

Division I of Section II is usually last to be lost, and its significance depends largely upon associated trends. With a manic type of reaction it may point to elation, but with depressive behavior it may indicate a feeble attempt to be agreeable.

Division II of Section II is of importance and indicates that the patient is constructively doing things. Usually, discharge as recovered would not be considered unless the patient was "doing things" in this sphere.

Division III, really a part of Section IV, lies in importance between Divisions I and II. It consists of:

- Entertainment, ×
- Occupation, ×
- Exercise, ×

Section III in normal individuals would be blank.

Section IV: Most important here are weight, sleep, appetite and medication or treatment. In the normal individual, appetite and sleep would be good, weight would be maintained.

In a case of manic excitement, most of the scorings would be in Division I. In various gradation we might observe the following trends:

- A. Restless.
- B. Impulsive.
- C. Capricious.
- D. Hoarding.
- E. Creating.
- F. Distractability.
- G. Flight of ideas.
- H. Destructive (?).
- I. Excreta careless (?).
- J. Excreta decorates (?).

This roughly forms a scale of what may be called "push," excitability, overactivity, etc. As more of the activities are included there is a tendency for Divisions II and III of normal behavior to drop out and any constructive work is impossible. Push plus Division I, Section I, often suggests elation which is not included in types of behavior to be observed. The other trends (anger and eroticism) in Section I are usually secondary to push in the manic picture.

Other trends in Section I:

- A. Anger:
 - a. Irritable.
 - b. Resistant.
 - c. Angry.
 - d. Combative.
 - e. Destructive (?).
- B. Eroticism:
 - a. Vulgar.
 - b. Destructive (?).
 - c. Masturbated.
 - d. Exposed.
 - e. Excreta careless (?).
 - f. Excreta decorates (?).

Kempf in giving the present form to the chart apparently thought in terms of expanding (manic) and contracting (depressive) personality reactions, but in making this study it seems convenient to observe certain trends such as push, anger and eroticism and to note the varying degrees in which they are involved. Some of the individual points to be observed might be considered as coming under different trends. Kempf thought of "destructiveness," "excreta careless" and "excreta decorates" as part of the expression of eroticism and this would possibly arouse question on the part of some. In view of the observations of these charts it could in most cases be considered as an expression of "push."

The group of behavior manifestations which Kempf considered as characteristic of the contracting personality have been divided into three main trends as follows: (See Fig. 1.)

Sadness:

- a. Brooding.
- b. Sad.
- c. Weeping.
- d. Picks, rubs (?).
- e. Suicidal (?).

Apathy (may lead to stupor):

- a. Uninterested.
- b. Refuses to speak.
- c. Eyes closed.
- d. Motionless.
- e. Dressed by attendant (sometimes).
- f. Incontinence (sometimes).

Fear:

- a. Anxious.
- b. Apprehensive.
- c. Afraid.
- d. Fears food.
- e. Panicky.

Delusions and hallucinations are noted at the lower portion of Section III.

Other items on the chart offer interesting opportunity for correlations, as for example (a) the influence on behavior of sedatives and hydrotherapeutic measures, (b) visitors may cause no change or a decided set-back or marked improvement in behavior may be noted, (c) the correlation between appetite and tendency to lose or gain weight.

Analysis of the chart can best be oriented by the degree of normal behavior together with "sleep" and appetite. Depressive features tend to fall chiefly in Section III while manic features are chiefly confined to Section I. Agitated Depressions usually show a combination of features in Sections I and III with dropping out of normal behavior (Section II). Cases may show swing from manic (Section I) to depressive features (Section III) or in those cases termed mixed manic-depressive, the chart may show a picture similar to a mild form of agitated depression. No study has been made of the schizophrenic picture, but in a few cases observed, there is a tendency to a scattering of markings on the chart with less inclination for maintenance of well marked affective trends.

The value of the chart would appear to lie in the amount of assistance it gives in making a diagnosis, the accuracy with which the course of the reaction may be followed, the training it gives observers, the ready correlations of certain important information, the fact that it gives a condensed daily record, and the rapidity and accuracy with which the physician can correlate and utilize the information gathered.

The limitations can be listed as follows:

The value is dependent upon the accuracy and reliability of the observer. The chart must be checked and correlated by other observers.

Variations on the part of different patients to express changes of attitude through behavior.

Occasionally marked distortion of ideational content with little apparent departure from normal behavior in the hospital.

A troublesome type of hypomanic reaction may show actually little distortion of the behavior picture as shown by the chart.

Markings on the chart may be contradictory due to the fact that the units cover a 24 hour period. Morning and evening variations are not indicated.

Noticeable changes tend to appear when a page is turned.

The observer may let personal likes or dislikes enter into the exaggeration or minimization of behavior.

Variation in heaviness or lightness of lines used in checking may result in a superficial appearance of change which does not actually exist.

In following the course of a case under observation, the following points are useful:

Filling in or dropping out of "normal behavior" is of primary importance.

Sudden changes in charted behavior may often be correlated with such topics as visits, hydrotherapy, etc.

Fluctuations in charted behavior usually indicate that a more permanent status has not been reached.

If the patient has been in the hospital during previous illnesses, some idea may be gained as to whether the recurrent attacks are stereotyped, milder or more severe.

"Rut" formation or fixation of the pattern of charted behavior often indicates poor prognosis for immediate recovery.

Sleep, weight and appetite correlations are useful in the study of the case.

Changes in dominant trends as in change from manic to depressive reaction or vice versa are clearly noted.

Loss of character or "color" in a chart may be a serious prognostic sign or may be connected with physical illness or may be indicative (as is sometimes the case at time of admission) of the excessive use of sedatives.

The behavior picture immediately after admission is apt to minimize or exaggerate the true condition of the patient.

Before discharge it is not unusual to note the checking of such behavior as anxious, apprehensive, irritable, panicky or a mild depressive reaction.

The chart is of greatest value and less apt to lead to error when correlated with data obtained from other sources. In discussing various phases of Thymergasia or Affective Psychoses, however, the behavior chart will be utilized as a more independent method than would be wise in the study of an individual case.

THYMERGASIA—DEPRESSIVE REACTION.

(The term recurrent depression may be deceptive as it is used often in initial depression or where other modes of reaction have manifested themselves. The depressive reaction is to be distinguished from the agitated depression and from manic-depressive psychoses (mixed).)

In studying the depressive reactions by the charted behavior it is possible to gain a very adequate idea of the dominant trends, the possible duration, severity and diagnostic confirmation or disproof. Since it is a cross-sectional picture of the behavior, one cannot, during the period immediately after admission, tell the general trend existing, whether toward a deeper depression or toward recovery.

The main factors dealt with by the chart are varying degrees of normal behavior with the dropping out particularly of Division II (industrious, games, reading and corresponding) and Division III (entertainment, occupation and exercise) as the intensity of the reaction increases. The majority of the charted behavior is in Section III. Here the three main trends are to be noted in varying combinations:

Sadness.—Brooding, sad, weeping, picks and rubs, suicidal.

Apathy.—Disinterested, refuses to speak, eyes closed, motionless, dressed by attendant (sometimes), incontinence (rarely). This trend may dominate with the resulting picture of stupor.

Fear.—Anxious, apprehensive, afraid, fears food, panicky.

The component parts of these trends are rather roughly listed so that they may be used as an index of the degree of expression of any trend. In following a patient, for example, it may be possible to note these trends increase or decrease.

Sleep and appetite are almost always impaired and of the two, sleep appears to be the more sensitive indicator of a disturbed mental state. The loss of appetite plus the loss of sleep indicates a more sweeping reactions.

In Section I no markings appear with consistency. *Push* is rarely evident except as "restless" or possibly as "impulsive." *Anger* is noted less frequently and then as "irritable." In one case a paranoid element "irritable," "impulsive" and "angry" was noted in the acute stage. The "erotic trend" was not charted in any of the cases of depressive reaction studied.

For the most part, the depressive reaction may be said to show the *sad*, *fear* and *stupor* trends. Any one of these may be dominant throughout the illness or may characterize it at one phase. Normal behavior is influenced in proportion to the severity of the reaction. Sleep and appetite are almost always impaired. Delusions and hallucinations may be present but the notes suggest that the content

does not usually go beyond the point of self-accusation and self-depreciation, and they are not, therefore, charted. In actual practice the charted depressive reaction can often be spoken of in terms of embankments which vary from an embankment of three (disinterested, brooding, sad) to one of seven which includes in addition, anxious, apprehensive, weeping, and picks and rubs (weeping frequently is not present). Secondary blocks (in the sense of position on the chart) are often observed showing either well-developed *fear* or *stupor* trends.

Often the picture shown by the chart does not indicate an outstanding feature of the depressive reaction such as hypochondriasis, paranoid symptoms, obsessional behavior, fatigue response, suicidal preoccupation, organic disease, drug delirium (here the picture may be much distorted), yet the chart even in these instances is of real assistance in that it emphasizes the nature of the affective reactions.

In the depressive reaction the increasing loss of normal behavior, impairment of sleep and appetite (where unmodified by other factors), increase of the depth of the embankment and a filling in of secondary blocks indicates on the whole greater severity of the reaction, with the usually justified presumption of a longer period of hospitalization.

The course of cases studied which recovered or showed much improvement at discharge was from two weeks to 15 months. Improvement, as a rule, was first noted in increased normal behavior particularly under the headings "industrious," "games," "reading," and "corresponding." "Sleep" and appetite" were also early indicators of improvement. Secondary blocks of "fear" or "stupor" elements or delusions, hallucinations or "suicidal" usually drop out first when present, or where these are not present, the height of the depressive embankment is reduced. The course of recovery just described is, in short, a gradual return to normal activity, followed, accompanied or preceded by the dropping out of the more exaggerated forms of the reaction or the reverse may be true if the patient is becoming sicker.

A second type of course is seen frequently in the tendency to a wave-like formation of the chart markings. In this event there will be a period varying from a day to several weeks in duration when the behavior may approach normal with the dropping out of

depressive behavior, but this will be followed by a succeeding period when normal behavior tends to disappear and depressive symptoms become more marked. There may be varying numbers of these fluctuations with a tendency toward stabilization either as a depressive reaction or as a normal state. This indicates that the patient may be headed toward recovery where the general trend is that of less marked swings and longer normal periods; it may indicate that the full severity of reaction has not been reached; or it may precede the fixation of the reaction at a depressive level of varying degrees of severity.

A third type of course has been designated as "rut formation." Here the depth of the reaction is not so important as the tendency toward a stereotyped behavior which is reflected in a behavior picture which changes practically none at all from week to week or month to month. It would appear that as long as the behavior does not become fixed in this type of reaction, the chances for a favorable outcome are far greater. With the development of this rut formation the best opportunity may be offered in a radical change of therapeutic approach or transfer to a new situation.

A fourth type of course is infrequently seen, where, as the result of some accident, operation or unknown factor, the patient almost at once shows a change from a depressive reaction to normal behavior.

A fifth type of course is seen in cases where the depressive reaction becomes gradually dominated by the stupor trend and a true picture of stupor ensues. A lack of cases showing recovery from depressive stupor does not allow of statements as to the picture of recovery.

A sixth possibility, that of suicide, may terminate the picture. Death from intercurrent disease is rare in these cases.

In many individuals, the depressive reaction tends to recur after "recovery" so that they may with some justice be called thymergasia-recurrent depressive reaction. Nothing in the charted behavior indicates that this type of depressive reaction is to be differentiated from the other type where, at a later period, some other thymergastic reaction may develop. Also there may or may not be a tendency for the recurrent depressions to follow a similar pattern in the different attack.

At the time of discharge as well or greatly improved one would expect normal behavior, as shown by the chart, to be well stabilized with a diminishing of the depressive symptoms. In a number of cases in this group, the depressive reaction was still evident but when considered with other factors, discharge was justified. Transfer to other hospitals was advised in two cases on the basis of rut formation. Nineteen of the cases of depressive reaction were known to have suicided at varying periods after discharge from the hospital. Correlations were, of course, difficult to make with the charted behavior, but there was a suggestion that those cases in which delusions were charted, or in which the fear element was marked were greater suicidal risks. During the hospital stay, it would seem that in this group (judging from a study of the history and notes) suicide was contemplated with some frequency (therefore not charted) but suicidal gestures were not made as a rule.

Usually the behavior as charted in depressive reaction, can be taken as a moderately good index of the severity of the reactions. Here again the individual differences are to be considered. An occasional individual may very cleverly mask his true feelings and we are well acquainted with the smiling depressive who may secure his discharge as recovered only to suicide at the first opportunity. This, however, is the exception. Other individuals may be more expressive of their feelings but the variations are not as great as one might anticipate and they may be guarded against by correlation from data obtained from other sources.

CASE 5447.—Woman, 38 years old. Thymergasia-depressive reaction. No previous attacks. Admitted 12-3-28. Discharged 3-8-29 as improved. Suicidal preoccupations led to hospitalization. On admission appeared slightly depressed. In January, 1929 on worst days, showed depressive embankment to six.

CASE 5431.—Man, 39 years old. Thymergasia. Recurrent depressive reaction with obsessional features. Previous attacks. Admitted 7-30-28. Discharged 11-2-28 as "well." Delusions and picks and rubs first to drop out. Fear trend (anxious and apprehensive) present when discharged.

CASE 5472.—Man, 36 years old. Thymergasia. Recurrent depressive reaction. Hysterical features. Admitted 12-30-28. Discharged 4-3-29 as well. There was a question of hysterical paralysis.

CASE 4324.—Woman, 39 years old. Thymergasia-depressive reaction. One previous attack of overactivity and several depressive phases. On entrance

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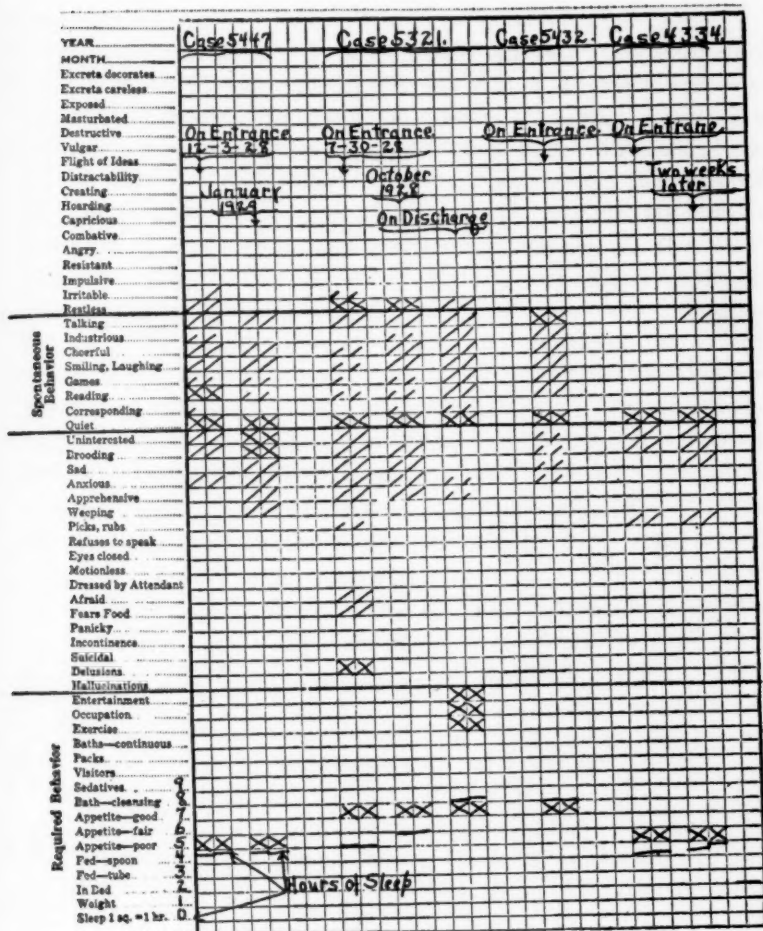


FIG. 2.—Thymergasia-Depressive Reaction.

there was a marked reduction of all activity which approached stupor. Later depressive reaction was more marked. Then recovery. Admitted 9-2-25. Discharged 11-22-25.

THYMERGASIA-HYPOMANIC REACTION.

The hypomanic reaction is one of the less striking pictures shown by the behavior chart and even in cases requiring institutional care there may appear to be little deviation from what the chart indicates as normal behavior. The chart probably shows minor deviations with less accuracy than it does the more severe aspects of reactions. For example, the "erotic trend" is only occasionally checked, yet in other records the patient may be referred to as "flirtatious," "forward" or as "having marked interest in the opposite sex," without however, reaching the point of vulgarity. A chart presenting a finer gradation of the various trends might be useful. This would, however, complicate the task of the observer and recorder, and would on this account be a less useful instrument than the present chart has proved to be. In hypomania, the normal behavior is often well maintained, although as in the case of the depressive reactions, Division II (industrious, games, reading and corresponding) and Division III (entertainment, occupation and exercise) of Section II tend to disappear as the severity of the reaction increases.

In the hypomanic reaction the three main trends of Section I (push, anger, eroticism) are usually present at one time or another to some degree at least. The chart, as a general thing, however, is not sensitive enough to show eroticism in its milder forms. Push, on the other hand, is always present and characterizes this reaction. As a rule it is evidenced by the checking of "restless" and "impulsive," increasing in severity to include "capricious," "hoarding" and "creating." Actually the differentiation between what is to be called hypomanic or manic is a matter of clinical experience, yet in the cases studied, push rarely reached the degree of "flight of ideas" and if so it was not sustained at this height. In fact, one of the features of the hypomanic picture seems to be the instability of the affect, with a tendency toward poorly sustained outbursts of push or at times of anger. This latter is noted in hypomanic cases usually as "irritable," "resistant," "angry," "combative" and at times "destructive." As in the case of push it is not sustained at

that level for any length of time. Nurses' notes may at times characterize the reaction as a tantrum. In the same way depressive swings are not infrequently noted with a tendency to weep, but the swing is not prolonged. None of the cases studied showed fixation or rut formation at the hypomanic level for a period of time comparable to those found in the depressive reaction, for example, yet we know that they do occur and an excessive push may often characterize the lifetime reaction of an individual.

The hypomanic state was often noted as a preliminary reaction which later developed into a full-fledged manic attack of which followed one. It was to be noted in certain cases of the manic-depressive reaction where the swing from the depressive phase did not go beyond the point of hypomanic reaction. It occurred in one or two cases as a prelude to a schizophrenic illness, although the chart contributed little in the way of help toward differential diagnosis.

Delusions and hallucinations were rarely indicated on the chart of these cases, although the records would show a tendency toward over-evaluation of self with not infrequent examples of poor judgment. Appetite was practically always fair to good and weight was sustained or showed a slight loss. Sleep was invariably impaired, sometimes to the extent that the patient would not average more than three or four hours a night.

"Suicidal" was not checked in the cases observed, although one patient discharged as improved suicided about a month and a half after leaving the clinic in what was presumably a depressive swing.

In summarizing this reaction, one can say that normal behavior is well sustained as a rule. Push is the dominant feature and may for brief periods reach the manic level. Anger is evidenced by a fairly general tendency to irritability but there may be well marked though poorly sustained outbursts which may be characterized as tantrums. Eroticism rarely reaches the point of vulgarity and is therefore seldom charted. Instability of the affective trends is a frequently noted characteristic of this type of clinic case.

CASE 3624.—Thymergasia—hypomanic reaction. Male, age 50. Admitted 6-23-23. Discharged 6-26-23. Brought to hospital by force. Chart shows anger almost entirely dominating picture. Patient committed to another hospital.

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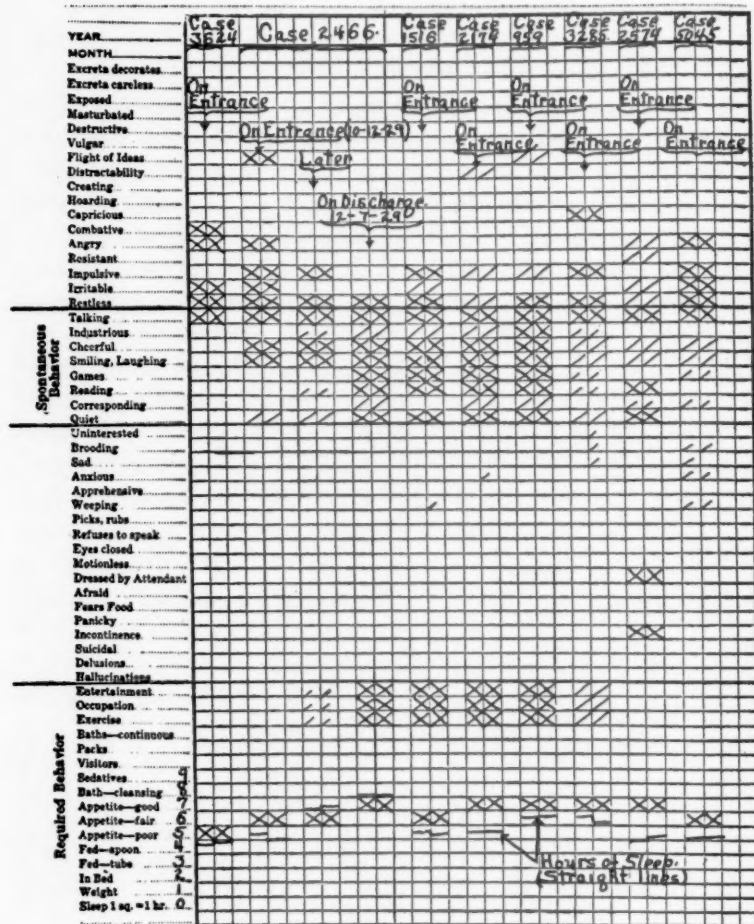


FIG. 3.—Thymergasia-Hypomanic Reaction.

CASE 2466.—Thymergasia—hypomanic reaction. Female, age 22. Admitted 10-12-19. Discharged 12-7-19. Approached a manic reaction in severity. There was a rapid return to normal with dropping out first of the erotic trend, then the anger trend and finally push.

CASE 1516.—Thymergasia—hypomanic reaction. Not improved. Discharged to another sanitarium where he recovered. Normal behavior well-preserved. Push and anger trends evidenced with tendency to weeping at times.

CASE 2174.—Thymergasia—hypomanic reaction. Female, age 41. Admitted 12-7-18. Discharged 3-8-19. Recovered. Normal behavior well-preserved. Push only trend indicated on chart aside from being "anxious" at times. Chart showed normal behavior only by February 1. Three previous hypomanic periods.

CASE 959. Thymergasia—hypomanic reaction. Male, age ? Admitted 10-18-15. Discharged 1-14-16. Improved. Manic reaction in August of same year. Chart shows only push with rather well-maintained normal behavior (Section II).

CASE 3285.—Thymergasia—hypomanic reaction—hypochondriacal features. Female, age 20. Admitted 4-5-22. Discharged 5-10-22. Improved. Predominate trend was push with a depressive flurry on entrance. Hypochondriacal features not indicated on chart.

CASE 2574.—Thymergasia—hypomanic reaction. Male, age 69. Admitted 3-5-20. Discharged 4-3-20. Improved. Many previous hypomanic attacks. Anger the dominant trend. The incontinence and dressed by attendant can be attributed to physical incapacities.

CASE 5045.—Thymergasia—hypomanic reaction. Female, age 18. Admitted 10-15-27. Discharged 5-31-28. Recovered. On entrance normal behavior poorly maintained with push and anger trends dominant with secondary trends of sadness and fear. (*Good chart for reproduction.*)

THYMERGASIA-MANIC REACTION.

In both the hypomanic and manic reactions, the same three trends (push, anger and eroticism) are present yet with the manic any semblance to normal behavior is lost. The chart shows Division I of Section II checked with the exception of "quiet." Push may not be present in all degrees, but flight of ideas is always checked. Anger and eroticism are usually present, although not invariably is this true. If present, they are noted to a marked degree. The majority of the markings are in Section I and those in Section II (talking, cheerful, smiling, laughing) might well be considered only as expressions of the dominant trends. In

Section III, fear and stupor trends are indicated. In fact several cases of manic excitement showed marked tendencies toward stupor reaction. Delusions are frequently, but not always, present. Hallucinations are checked in less than half the cases in which delusions are present. Appetite is good, but as a rule weight is not maintained. Sleep is invariably poor. Therapeutic measures in the form of baths, packs or sedatives are necessary.

In describing the chart of the manic reaction it is not possible to make use of the terms embankment and secondary blocks with such frequency as in the case of the depressive picture. It is much better to speak in terms of the extent of involvement of the various trends. In studying a profile of a number of cases, one could say, though, that a primary embankment and secondary block were to be observed. This seems to have resulted from the fact that hoarding, creating and distractability were only occasionally marked in these cases.

The most typical course of the cases studied was a sudden outburst, with the excitement reaching a climax within a few days and being maintained there from one to two weeks, gradually returning to normal in about the same length of time. A second type of course was that in which the excitement had gradually increased (often outside the hospital) was maintained for a longer period and gradually subsided. In recovery a wave formation, similar to that in the depressions was seen, with subsidence of the excited behavior, then exacerbation, then subsidence until a more fixed state was reached. A few of the cases remained at the hypomanic level for some time before a return to normal, but not with the same tenacity to rut formation as in the depressive cases of this series. In a few cases partial stupor was evidenced as a phase of the excitement, but none of them showed a fixed manic stupor. In one case the chart showed a fading of the manic excitement without replacement of normal behavior and finally discharge to a State Hospital as unimproved. Other cases showed a swing toward depressive behavior but there were not many of this type.

Manic reactions may occur in the form of recurring attacks so that the term thymergasia, "recurrent manic reaction," is applicable to certain cases.

CASE 3616.—Thymergasia—manic excitement. Boy, age 16. Onset occurred shortly after recovery from measles. Complete clearing of behavior in Sections I and III after a week and discharge at end of second week.

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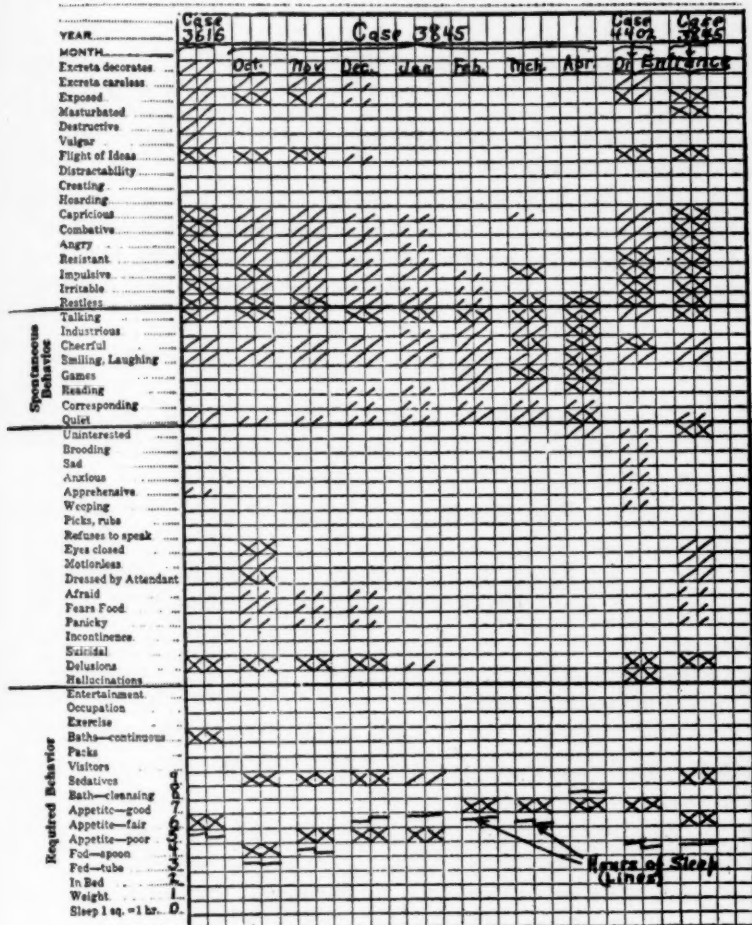


FIG. 4.—Thymergasia-Manic Reaction.

CASE 3845.—Thymergasia—manic excitement. Male, age 20. Entered 9-26-23 and discharged 3-12-24. On entrance well-developed manic attack with fear and stupor trends. In October and November picture much the same. In December appetite and sleep improved and other trends less well defined. Continued improvement through February with return of hyperactivity in March. In April restless, normal behavior well filled in but with some tendency to be disinterested and brooding. Discharged as well and was making good adjustment in 1930 without intervening attacks.

CASE 4402.—Thymergasia—manic reaction. Second attack. Female, age 34. Admitted 11-18-25. Discharged 2-22-26. Improved. Depressive features noted on first day. Tendency for manic features to disappear and then reappear but general trend was toward improvement. At discharge behavior chart showed normal behavior.

CASE 3845.—Thymergasia—manic reaction. Female, age 20. Admitted 9-30-23. Discharged 4-12-24. Well. On entrance marked fear and stupor trends were evident. Stupor trend dropped almost at once but fear trend maintained for several weeks. By February behavior essentially normal. Slight return of push in March.

THYMERGASIA-AGITATED DEPRESSION.

This group of cases shows behavior both in Section I (push and anger trends) and in Section III (with trends of sadness and fear dominant). It includes those cases designated Involutional Melancholia because of their affective features. From the point of view of charted behavior this group presents as clear-cut a behavior picture as do the manic or the depressive reactions. Probably the mixed type of manic-depressive reaction resembles it in certain features in the trends involved, but the agitated depression reaction has certain distinguishing characteristics.

On admission, these cases present a fairly uniform picture which, as the name suggests, shows both agitation and depression. In Section I of the chart, the behavior as a rule does not exceed an embankment of five (restless, irritable, impulsive, resistant and angry). One case showed both hoarding and flight of ideas in addition to an embankment of three (Case 5481 recovered). Two cases were destructive (in one a Parkinson complication with restless and continued walking; the other had in addition masturbated and exposed). In several cases in which restless alone was charted, "wringing hands" or "walking continually" or "agitation" were written in as best expressing the type of behavior. In Section I it can be said that the chart usually shows an increased

activity which is impulsive frequently marked by anger, often resistive, occasionally destructive, rarely erotic, sometimes destructive but never constructive and rarely socially acceptable.

Section II, on entrance, is almost always poor with little tendency for industrious, reading, corresponding or games to be checked. The markings on the chart, if present, tend to fall within the group of talkative, cheerful, smiling, laughing or quiet. Markings in Division II are more significant from the point of view of recovery than those of Division I.

In Section III there is an embankment of from three to 11. Occasionally there is a small primary embankment plus refuses to speak, eyes closed, motionless, and dressed by attendant. In this section, fear in some form is recorded in a majority of cases under afraid, fears food or panicky. Over a fourth of these cases were actively suicidal and, although not so indicated on the charts, others were definite suicidal risks. Not quite half of the cases showed delusions checked at this initial period. In Section IV, sleep was poor to fair in practically all of the cases. Appetite varied from poor to good without any consistent correlation with other features on the chart.

In brief, the charted behavior in a case of agitated depression at the time of entrance shows (embankment of five) restless, irritable, impulsive, resistant, and angry. In Section II (normal behavior) poor to fair. In Section III (embankment of from three to eleven) includes disinterested, brooding, sad, anxious apprehensive, weeping, picks and rubs, refuses to speak, eyes closed, motionless.

(b) Fear reaction—Afraid, fears food, or panicky (in most of the cases).

(c) Suicidal—This was actively true in about one-third of the cases.

(d) Delusions occurred in about one-half of the cases.

In Section IV sleep was usually poor and appetite varied from poor to good.

In studying the course of this reaction it is evident that the hazards and difficulties of treatment are much greater than in the depressive reaction, for example. Death from disease, suicide or complicating conditions is more frequent. The course tends to be more prolonged than in the types of cases thus far studied, the

average age of the patient is greater, and the overactivity plus poor sleep and poor appetite results in a loss of weight and strength. In addition to these factors, complicating physical disease seems to be more often apparent.

This reaction, more than any other, is characterized by the tendency to a fixation of affect or rut formation. Even in the cases which recover, changes are slow and there is nothing of the dramatic return to normal of the manic excitement. In the few cases showing recovery this came in from two to seven months. In cases showing improvement at time of discharge, progress had been slower in most instances with little tendency to fluctuations or sudden change. Any sudden change, when it does come usually is concomitant with the development of some demonstrable organic condition. The course in some cases is marked by repeated suicidal gestures and all cases are suicidal risks. Improvement is evident on the chart by an increase in normal behavior and a lessening of charted behavior in Sections I and III and improvement in appetite and sleep. Although an increase in normal behavior may precede other changes, this is not always the case. In this type of reaction there is little tendency toward marked manic or depressive swings or toward radical changes in the dominant trends.

CASE 5479.—Thymergasia—agitated depressive reaction. Male, age 62. Admitted 1-5-28. Discharged 3-6-29. Recovered. On entrance normal behavior was poor. In Section I there was a poorly filled in embankment to five showing push and anger trends. In Section III there was an embankment to eight (weeping omitted) was afraid also checked. Delusions were noted. There was a rapid clearing of the embankments and filling in of normal behavior.

CASE 5411.—Thymergasia—agitated depressive reaction. Female, age 55. Admitted 10-22-28. Discharged 4-16-29. Recovered. On admission practically no normal behavior was checked aside from talkative. In Section I there was an embankment of five showing push and anger trends. In Section III there was an embankment of six with fear being the dominant trend. Course marked by periods of being afraid and panicky in first three months with gradual improvement, though at times fluctuation was to be noted.

CASE 5481.—Thymergasia—agitated depressive reaction. Female, age 49. Admitted 1-7-29. Discharged 3-16-29. Recovered. Normal behavior poor on entrance. In Section I push trend marked. In Section III sad and fear trends evident. Recovery rapid with clearing in Sections I and III and return of normal behavior.

case 512

THE JOHNS HOPKINS HOSPITAL

Henry Phipps Psychiatric Clinic

Unit History No. _____

WARD _____

NAME _____

Psychiatric No. _____

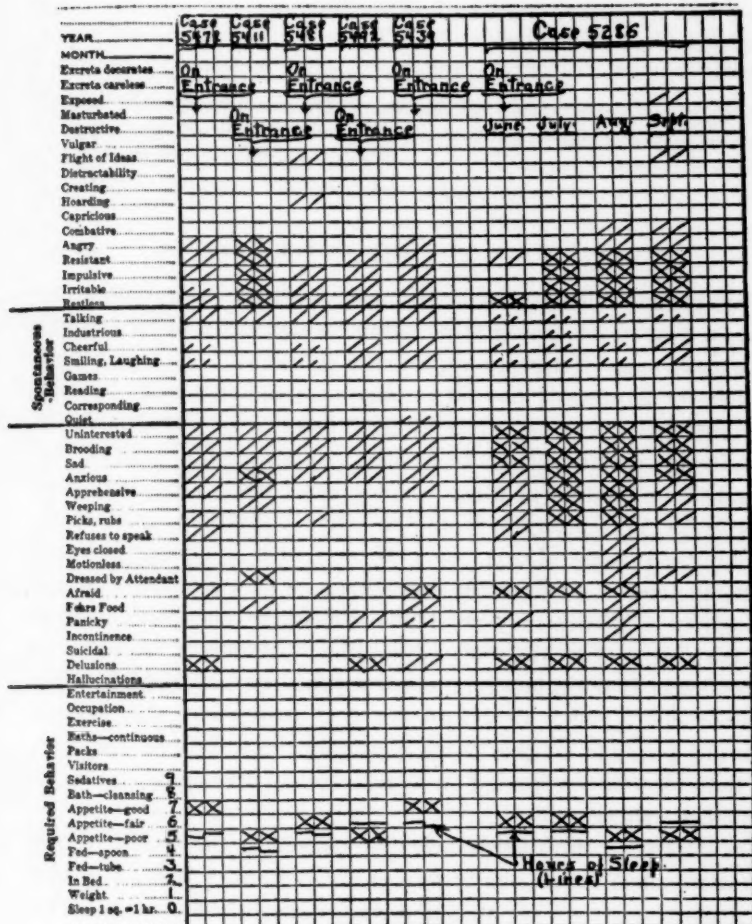


FIG. 5.—Thymergasia-Agitated Depressive Reaction.

CASE 5492.—Thymergasia—agitated depressive reaction. Male, age 67. Admitted 1-24-29. Discharged 5-31-29. Improved. Improvement shown only in increased normal behavior and loss of fear of food.

CASE 5439.—Thymergasia—agitated depressive reaction. Male, age 32. Admitted 11-23-28. Discharged 1-31-29. Improved. During stay in hospital normal behavior showed slight improvement with reduction of embankments in Sections I and III from five to two. The fear trend was still evident but reduced.

CASE 5286.—Thymergasia—agitated depressive reaction. Female, age 39. Admitted 6-15-28. Discharged 8-23-29. Improved. Chart shows reaction of marked severity which reaches a peak in third month of hospitalization. In this case chart showed marked fluctuations in charted behavior.

THYMERGASIA-MANIC DEPRESSIVE REACTION.

This group of cases can be divided into two. The first group shows a tendency to swing from manic to depressive phases or vice versa with some frequency during the course of a limited attack. Neither the depressive nor the manic phase appears to be of very different character than those already described. The lability of the affective reaction seems to be at the opposite pole from the rut formation or fixation of affect already described. The mechanism is probably not different from the wave formation particularly noted in the manic and depressive illnesses, or possibly not different from the tendency of certain individuals to show periodic swings throughout a lifetime. It would be difficult to even speculate as to a correlation with the morning-evening variation often noted in depressions. It does, however, show a fairly typical picture on the behavior chart and is described for that reason. In the passage from one phase to another there is usually not a normal interlude, but there is often a period in which both manic and depressive trends are evident.

The second group of this behavior pattern is one which shows both manic and depressive trends as the dominant feature with a less marked tendency for swings toward either manic or depressive dominance. The behavior picture is on first appearance not so unlike that described as the agitated depression reaction. It, however, shows less fixation of the affect, "fear" plays a relatively minor rôle, delusions are less frequently noted, and suicidal gestures or attempts are less frequent. Management of sleep, appetite

and maintenance of weight are less serious problems than in the agitated depressions. A comparative study of the content of the two conditions would probably show characteristic dissimilarities.

Recovery in either case takes place by gradual improvement with filling in of normal behavior, and dropping out of more marked degrees of the various trends until a normal state is reached; or by swings which are less wide until stabilization is established. Discharge soon after a return to normal may not be without certain hazards.

From cases studied in this group one is inclined to conclude that, although the patient may recover, he is less stable in his adjustment than in other illnesses previously described. This is not numerically a large group, yet one gets the impression that prognosis is not so favorable as in other instances of affective reaction, as the assets of the individual are less, the constitutional make-up is poorer and the habit organization not so well stabilized.

CASE 4203.—Thymergasia—manic-depressive reaction. Female, age 18. Admitted 11-16-24. Discharged 5-24-25. Recovered. Depressive reaction on entrance lasting about three weeks. Phase showing both manic and depressive trends—nine weeks \pm . Manic reaction eight weeks \pm . Normal (?) with hypomanic features suggested by chart but discharged as recovered.

CASE 3291.—Thymergasia—manic-depressive reaction. Male, age 15. Admitted 10-2-21. Discharged as recovered 5-21-22. Course was marked by frequent manic, depressive, mixed or normal phases. The sampling does not show all the fluctuations. Case readmitted in 1924 for two months and later known to be in mental hospital in 1928. Second admission not unlike first with discharge as recovered. The interval between admissions was marked by mood swings.

THYMERGASIA-SCHIZOPHRENIC FEATURES.

The group of cases designated as affective psychoses with schizophrenic features is relatively not a large, but an interesting one. Dr. Phyllis Greenacre reported one aspect in her paper "The Content of the Schizophrenic Characteristics Occurring in Affective Disorders." In studying the behavior charts of these patients, one is impressed by the fact that the greater number of them fall under the headings of manic excitement with schizophrenic features, manic excitement and stupor with schizophrenic features and hypomanic reaction with schizophrenic features. In terms of the behavior chart the trends of push, anger, and eroticism are

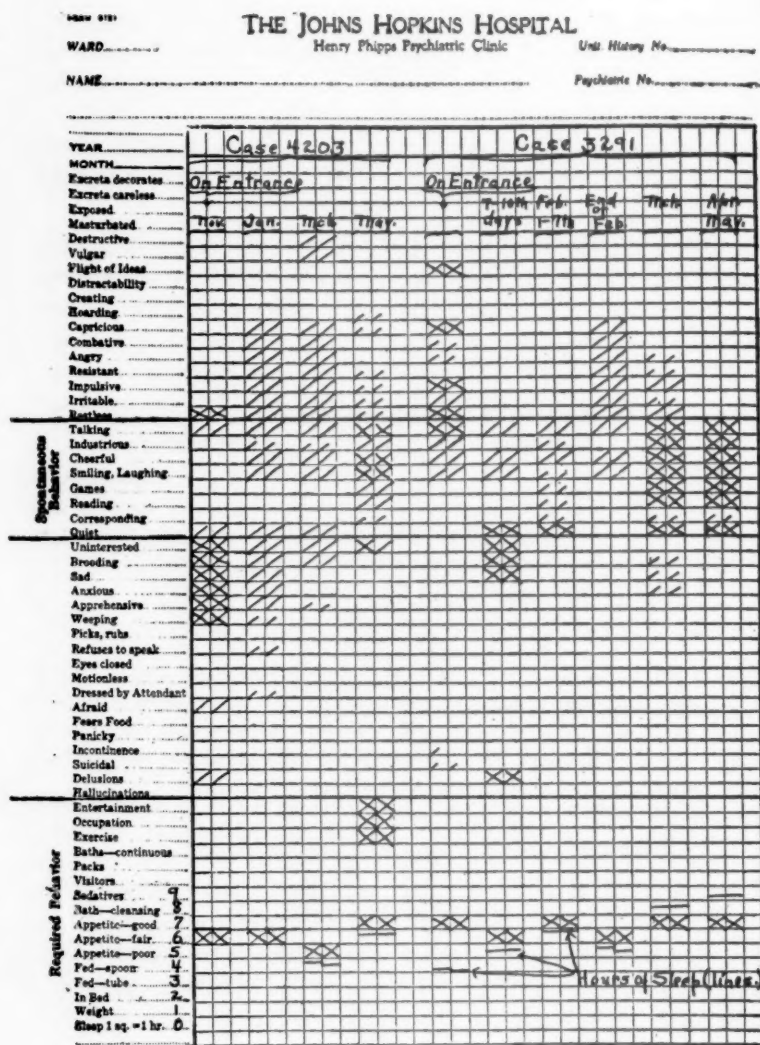


FIG. 6.—Thymergia—Manic-Depressive Reaction.

most marked. The apathy or stupor trend is very noticeable in a small number of instances. The excitement is usually accompanied by delusions and hallucinations which may precede the excitement, and drop out with its subsidence. As a group, appetite is good and sleep poor, although food intake may not be sufficient to sustain weight.

The onset of the illness was usually before 30 and often before 20 years of age. Without a close analysis, one gets the impression that sex conflict in some phase is more evident than in any other group of the affective disorders. It is difficult to make generalizations, but delusions and hallucinations are as frequently or more often noted than in the other groups studied.

If the attacks recur, there is not the tendency toward stereotypy noted in other affective reactions, but the general trend is toward a more clear-cut schizophrenic or affective picture.

For example, the diagnoses of case 2480 are as follows:

First admission:

Schizophrenic reaction type-affective features.

Second admission:

Manic depressive reaction type-schizophrenic features.

Third admission:

Reactive depression—sex tension.

Or, as in case 3283:

First admission:

Manic-depressive reaction type with schizophrenic features.

Second admission:

Manic-depressive reaction type with schizophrenic features.

Third admission:

Schizophrenic reaction type.

In another case (2685) diagnosed as recurrent manic excitement with schizophrenic content, the trend noted above was not obvious.

The manic excitement with schizophrenic features seems to differ from the usual manic excitement in the following respects:

- a. A greater tendency to stupor.
- b. Delusions and hallucinations more frequently charted.
- c. Erotic element more frequently noted.
- d. One trend frequently noted as dominant.

The hypomanic group with schizophrenic features is too limited to allow of any final conclusions. Push is the dominant trend. General outlook in these cases is poor.

The very few cases showing a characteristic depressive phase had suffered other attacks or phases in which schizophrenic features were evident. One might conclude that depressive episodes might occur in schizophrenia, but that depressive reactions are further removed from the schizophrenic reactions than those of the manic type. This type, according to the behavior charts shows a tendency to present a picture in which the dominance of schizophrenic or affective features is essentially a matter of clinical judgment or preference.

The stupor reaction in this group, so far as the chart is concerned, shows little which is of aid in determining the nature of the stupor whether that is benign or malignant.

THYMERGASIA-PARANOID FEATURES.

This group is too limited to be able to draw any final conclusions. It would seem that the paranoid trend was rather marked in the pre-psychotic personality, and one might more accurately state the condition by calling it an affective psychosis in an individual with paranoid personality.

Cases are as follows:

Thymergasia—manic-depressive reaction—paranoid features (manic and depressive swings).

Manic-depressive reaction—paranoid features

Manic reaction—paranoid features.

Manic reaction—paranoid features.

Manic reaction—paranoid content.

Depressive reaction with paranoid features.

From the behavior charts one gets the impression that as a rule anger and fear trends tend to dominate, although in one case the erotic element was very marked. The excitements were prolonged in two cases, and of from three to four months duration in a third case.

The one case of depression with paranoid trends was discharged as improved but later was sent to a State Hospital where the diagnosis of dementia præcox, paranoid type was made. The behavior chart showed a depression with depressive and fear trends dominant.

CONCLUSION.

In conclusion, one may say that normal behavior contains the affective trends spoken of in the discussion of the chart, although

they are not present with such clarity nor to the extent in which they are found in the thymergic reactions. Push in some degree is necessary for normal behavior, and when it exceeds these normal limits in one direction we have such reactions as the hypomanic or manic. When push is in more or less complete abeyance we get the picture of stupor indicated on the chart to be motionless, etc. Closely allied to push are the trends of anger and eroticism which tend to disappear as the behavior approaches the stupor or apathy reaction and is closely associated with the trends of fear and sadness. These trends may occur in relative purity or in various combinations often characterized by certain ideas or ideational trends. The excessive push is accompanied by ideas of self-aggrandizement and over-evaluation which has as its opposite the self-effacement of the stupor patient or self-depreciation and destructive tendency of the depressive patient. Push may be evidenced along with eroticism and thwarting in any field may result in anger reactions with only slight if any tendency to fear or sadness which are more closely related to the apathy trend. Although in manic excitement sadness is occasionally noted, apathy is next in frequency with the tendency in some cases to completely dominate the picture, and fear is most frequently the secondary trend.

In the cases of agitated depression there is another combination of trends which rarely if ever terminates in stupor, but the organism is apt to suffer even more than in other affective reactions through the increased activity, decreased food intake and poor sleep, or through suicide. Here the trends involved would be primarily "push" and "sadness" with "anger" and "fear" as secondary, and with the usual absence of apathy and eroticism. In the affective psychoses as studied with the use of the behavior chart, six trends are brought out with sleep, appetite and therapy noted as more or less secondary factors. The chart gives little aid in the study of hallucinations and delusions, except as one can correlate their appearance with certain types of behavior. Attempts were made to correlate suicidal tendencies with other points on the chart as suicide has occurred more frequently in cases falling in the thymergasia group than in all other cases studied in the clinic and followed after discharge. Its occurrence is to be correlated most closely with those cases which show the sad trend primarily

with fear or push—that is, it is less frequent in simple depressive reactions and more frequent in agitated depressions, but suicide is a possibility in any case showing depressive tendencies.

The material presented in the chart may be used as an aid in diagnosis, but studies of other types of reactions are indicated before any final conclusion can be reached as to its value in differential diagnosis.

When possible the relative frequency of certain phenomena were noted but the material did not lend itself to statistical handling.

Recovery from an attack seems to be most certain in cases of pure affect disturbance where unusual ideational developments and behavior are not present.

In following a case in the clinic or hospital the use of the behavior chart described is a great aid in treatment and the assistance it gives in following the trends of push, anger, eroticism, sadness, fear and apathy during the course of the reaction is a constructive help in the study of that reaction.

GRADING OF PATIENTS IN MENTAL HOSPITALS AS A THERAPEUTIC MEASURE.

By MILTON H. ERICKSON, M. A., M. D.,
Clinical Research Psychiatrist,

AND

R. G. HOSKINS, M. D., PH. D.,
Director of Research,

Worcester State Hospital, Worcester, Mass.

For the past four years the Worcester State Hospital has been carrying out a research project on the etiology and therapy of dementia præcox.¹ In addition to endocrine and other drug medication, systematic attention has been given to certain types of situational therapy. Among these, a plan of grading and promoting patients was instituted, and sufficient experience has now accumulated to justify a preliminary report of results.

The idea is by no means novel. An essentially identical plan was introduced into the Irish Convict Prison by Sir Walter Crofton in 1854. He established a method of classing the convicts into grades and of promoting them from a relatively simple environment through one of increasing complexity to that of normal, social life. During this process, an effort was made to stimulate the prisoners to self-betterment. That various similar plans have been employed in more or less elaborate form in mental hospital practice is well known. The common use of parole privileges, which, from the standpoint of the patient, constitute a reward bestowed for improved conduct, is one phase of this general plan. So far as we are aware, however, the method has not been employed sufficiently extensively and systematically, under controlled conditions, to permit an appraisal of its therapeutic value.

Ordinarily, the patient comes to the hospital in a state of high emotional tension that is a result of his unsuccessful attempts to cope with an over-trying environment. During the initial period in hospital, perhaps the most valuable feature is a simplified environment that relieves him, in a measure, of the necessity for a psychotic adjustment. After a time, however, the simplified situa-

tion is likely to have an effect as detrimental as it was at first favorable. The hospital environment tends to promote conformity, obstruct individuality, and deprive the patient of personal interests. He becomes "institutionalized," and develops habits of routine behavior which, coupled with natural human inertia, tend to keep him on the level of "good ward adjustment." The time comes when the psychiatrist desires to institute a more active regimen to stimulate the patient to take up once more the problem of self-realization. He then encounters the problem of motivation. He may give any amount of good advice, but be completely baffled by a spirit of "*cui bono*."

When the patient has reached this stage there is need for introduction into the ward management of some means of actively correlating his own personal interests with the hospital situation. This should be done in a forceful but unobtrusive way, taking into account the fact that the individual patient is highly ego-centric, and may be strikingly unable to visualize himself as psychotic and appreciate his situation as similar to that of his fellows. He cannot, therefore, readily be approached on any basis of common experience as to what is good for mental patients. Any appeal must be personal. It must be acceptable, readily comprehended, and genuinely stimulating.

Since the great majority of patients have had several years' experience in the public schools, and have become conditioned to response to schoolroom routines, less resistance is to be anticipated if situational therapy can be given the coloration of schoolroom technic. In particular, the subjects are quite habituated to promotions as a result of active conformity to imposed routine. They are inclined to accept unquestioningly the abstract justice of this, as some of their comments quoted later will show.

The plan adopted in the Research Service of the Worcester State Hospital consists in a scheme of grading based chiefly upon behavior. It is formulated in terms comprehensible to the patients, rather than appealing to the scientific sense of the psychiatrist. An explanatory statement of the scheme is posted conspicuously in the wards. It consists of a series of paragraphs, and each is displayed as a large poster. Each poster carries the line, "Patients are sent home only from Grade B." In each ward is kept posted, also, a roster of

all patients on the service, classified by grades. Each week a list of promotions and demotions is posted.

In all, seven posters are used, reading as follows:

THIS WAY OUT.

All patients on the RESEARCH WARDS are graded according to their progress. As they improve they are promoted. They are sent home ONLY FROM GRADE B. If you want to go home, improve your grade.

Your doctor will explain.

GRADE A—AT HOME.

Able to act like normal people.
Able and willing to work.
Able to get along with family and friends.

GRADE B—GOING HOME.

Getting well enough to go home.
Working well.
Reliable on parole.
New interests and new ideas.
Old ideas controlled or understood.
Rebuilding mental strength to stay well.

Patients are sent home only from Grade B.

GRADE C—ON PAROLE.

Working and playing well.
Getting new ideas and interests.
Making the best of everything.
Cooperating well and obeying rules.

Patients are sent home only from Grade B.

GRADE D—FIRST CLASS ON THE WARD.

Keeping neat and tidy.
Working well and playing well.
Learning to take things as they come.
Beginning to understand old ideas.
Learning to cooperate in everything.

Patients are sent home only from Grade B.

GRADE E—SECOND CLASS ON THE WARD.

Working and playing poorly.
Lazy and shiftless.
Too proud of own ideas.
Not very cooperative.
Careless of clothing.

Patients are sent home only from Grade B.

GRADE F—THIRD CLASS ON THE WARD.

Mute, resistive.
Silent or too talkative.
Excitable and disturbed.
Not cooperating.
Not working or playing.

Patients are sent home only from Grade B.

PRACTICAL RESULTS.

This scheme has now been in operation about six months. The poster material was displayed, one unit at a time, over a series of weeks. The first poster was placed in a well lighted, prominent position over a door through which all patients routinely passed. After a few days it was removed to an alcove, and the second poster put on display over the door. Thus the whole series ultimately came to be posted in the alcove, where each could serve frequently to reinforce the suggestions. From the first, the patients manifested a marked interest in the posters. A census revealed that at least eighty per cent were giving them their personal attention. Some patients were elated over their classification; others were disappointed and argumentative, though only one or two out of a hundred showed any definite antagonism. Various illuminative criticisms were collected from the patients. Some of these may be recounted.

F. P.—“That’s like being in school. You can get somewhere in school—just go from one class to another; only here you go home.”

A. T.—“I’m in Class D. I don’t think I can ever get in Class A, but I know I can get in C, and I’m going to do it.”

J. T.—“You’ve got me in C. I belong in A.” This patient protested for weeks and then began asking the nurses and attendants and physicians what to do to get in Class B, calling attention to every achievement in order to win promotion.

J. F.—“How long have I got to stay in F?” He was given an explanation and shown by the chart and answered, “Oh, I can do that. I’ll be in E next week.” (He was.)

S. R.—This patient is untidy, soiling himself night and day. Upon coming to the ward and noting his classification, which was F, he stared at it steadily for a half hour, then asked the examiner, “Am I in Grade F?” He was told that he was, and after ten minutes more study asked, “Do I have to stay there?” Informed to the contrary, after a long pause he answered, “Well, I won’t.”

T. A.—“You’ve got to go through that like you do in school, doctor, I want to be in C and then I’m going to get in B, and then I can go home.”

E. M.—“That’s silly—nonsense. They’ve got me in Class C. I’ll show them where I belong. If they want more work, I can do it. I belong in Class B.”

E. D.—“Doctor, can’t you show me how to get up in the next class?”

A. C.—“When I first came here, I was in F, but I just had to do one little thing and then another, and then you keep going up, and now I’m in B.”

An unforeseen element of value in the scheme is its effectiveness in eliciting the cooperation of the families of the patients. They became much interested in the grades given to their afflicted relatives. Not infrequently the visitors have taken a wholesome, active part in the therapy, urging greater effort upon the part of the patients, praising them for their progress, and, on their own part, developing new interests in place of the previous hopeless attitude. Promotions in some cases have been rewarded by the relatives by special gifts. There has been a definite increase in the number of visits. One mother commented: “Albert was in Grade F so long that I lost hope, and then when he got promoted to E, I felt happy. Now he is in D, and I want to come to see him every week to see how long it will be before he is in C.” While the therapeutic effect of such an attitude of the relatives is difficult to measure its reality is unquestionable.

DISCUSSION.

The plan described can be related directly to the underlying principles of psychiatry. A striking feature of the schizophrenic patient is the regression to immature levels of thought and behavior. The project is definitely planned to meet the patients at the childhood levels, to evoke childhood memories, and utilize earlier conditioning. Again, the simplicity of the plan broadens its appeal

both to the patient of lower grade mentality and to the patient whose interest cannot be aroused in anything requiring much mental effort because of his preoccupation with his phantasy life. Particularly, the principle of graduated achievement is theoretically sound. To many patients in the lower grades, the feat of stepping at once into the highest grade seems impossible of accomplishment. The task of improving their status by a single grade, however, appears much less hopeless, and they are accordingly more inclined to make the necessary effort.

One of the most ominous features in the schizophrenic psychosis is a malignant sense of isolation. The patient's thinking tends to be exclusively in terms of "I" and "Me." To whatever extent he can be brought to think in terms of "We" and "Us," he is on the way to a cure. The plan under discussion is of some value in stimulating a sense of group consciousness. Moreover, it introduces the principle of emulation within the group, which reinforces the attention to the plural pronoun rather than the singular.

The plan is valuable in its constant repetition of suggestion, without becoming a stale and accepted part of a meaningless routine. This follows from the fact that the patient, with each promotion or demotion, has occasion to re-orient himself and thus reconsider the whole situation in terms of personal interest.

Perhaps the most significant element in the plan is its tendency to enhance the self-esteem of the patient. In practically every case, the schizophrenic psychosis exhibits a protective reaction to a sense of personal failure.² Each improvement in the patient's grade gives him a sense of accomplishment.

SUMMARY.

A plan is described that is in successful operation as one feature in situational therapy in a research service devoted to the study of schizophrenia. The patients are formally divided into six groups in accordance with their psychiatric status. Each group is described in terms comprehensible to the patients, and to each group is assigned a grade letter. Patients are promoted or demoted from grade to grade in accordance with changes in the mental condition. All promotions and demotions are given ward publicity. This is an effective method of motivating efforts toward self-improvement and

of stimulating hope in the individual patient. The method is widely applicable to state hospital practice, and yields excellent therapeutic results for the effort expended.

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A STATISTICAL STUDY OF DELUSIONS IN THE MANIC-DEPRESSIVE PSYCHOSES.*

By KARL M. BOWMAN, M.D.,

*Assistant Professor of Psychiatry, Harvard Medical School,
Chief Medical Officer, Boston Psychopathic Hospital,*

AND

ALICE F. RAYMOND, A.B.,

Statistical Research Assistant, Boston Psychopathic Hospital.

This study is based on 1009 cases of manic-depressive psychoses, the entire number of first admissions to the Boston Psychopathic Hospital with this diagnosis for the five-year period 1923-1927 inclusive. As groups for comparison there were used 1408 cases of schizophrenia and 496 cases of general paresis, the total number of first admissions with these two diagnoses during the years 1923-1927. A code sheet was used which included some 45 different items. Delusions were classified under the following headings: none, grandiose, religious, erotic, hypochondriacal, persecutory, unspecified and unknown. Double coding was allowed so that an individual might have any or all of the types of delusions mentioned. A single delusion might be classified under two or more headings. Coding was done by hospital and research psychiatrists from hospital histories already written. Statistical cards were punched and subsorted according to the three diagnoses and two sexes in each of the five years.

This gave straight distributions for comparison as to (1) consistency from year to year and (2) significant differences between the samples. The samples show some variation from year to year. First of all there are striking differences from year to year in the number of cases diagnosed schizophrenia. Then there are differences in the numbers of "unknowns" in all diagnoses. There

* This study is a part of a statistical research at the Boston Psychopathic Hospital which was made possible by a grant from the Laura Spelman Rockefeller Foundation. Read at the December, 1930, meeting of the Association for Research in Nervous and Mental Diseases, New York City.

are also differences in the number of delusions coded (per patient). A consideration of these variations might more properly be made the subject of a separate statistical study. For the purpose of this study the five years have been grouped together, thus committing the error of covering yearly variations. This is done because of the complexity of the problem of studying the variations mentioned and because of the fact that in the yearly samples the numbers under some headings are rather small for detailed analysis.

The first consideration is the distribution of delusions by diagnosis and sex. Table I gives the number and percentage distribution

TABLE I
NUMBER AND PERCENTAGE DISTRIBUTION OF DELUSIONS AMONG 2913 FIRST
ADMISSIONS WITH CERTAIN PSYCHOSES, BOSTON PSYCHOPATHIC
HOSPITAL, 1923-1927

Delusions	Manic-Depressive psychoses				Schizophrenia				General paresis			
	Male		Female		Male		Female		Male		Female	
	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent
None.....	169	43	253	41	72	10	48	7	167	39	28	42
Grandiose.....	48	12	27	4	78	11	52	8	116	27	8	12
Religious.....	21	5	46	8	84	12	101	15	13	3	4	6
Erotic.....	15	4	30	5	97	14	141	20	15	3	2	3
Hypochondriacal.....	24	6	45	7	62	9	39	6	5	1	1	1.5
Persecutory.....	78	20	125	20	388	54	398	58	87	20	15	23
Unspecified.....	57	14	114	19	146	20	152	22	32	7	3	5
Unknown.....	45	11	77	13	97	14	91	13	45	10	12	18
Total.....	457		717		1024		1022		480		73	
Number of Patients.....	396		613		718		690		430		66	

of delusions by diagnosis and sex for the five year period. Percentages in this table are based on the total number of patients, given in the last row. Because of the double coding of delusions the total percentages exceed 100 per cent. Analysis of the types of delusions in the manic-depressive psychoses according to sex as demonstrated by an analysis of Table I and by yearly samples, which

are not printed, shows but little of significance.* The males show a higher percentage of grandiose delusions than the females. An analysis of the delusions in schizophrenia according to sex in the yearly samples and in Table I likewise shows little of importance. In Table I the females show a significantly higher percentage of erotic delusions than the males, the percentage being 20 to 14. No other significant differences are noted. A study of the delusions in general paresis, according to sex, is unsatisfactory since there are too few females to make a valid comparison with the males.

A comparison of the three different psychoses with regard to the types of delusions shows the following: as would be expected the manic-depressive psychoses show more cases with no delusions than the cases of schizophrenia. The cases of schizophrenia show a consistently higher percentage of religious, erotic and persecutory delusions. The percentage of hypochondriacal delusions shows no significant difference between the two groups. Under unspecified and unknown delusions there are no significant differences. In cases of general paresis the percentage of no delusions is approximately the same as in the manic-depressive psychoses. Persecutory delusions also occur in the same percentage in general paresis as in manic-depressive psychoses. Again as would be expected, there is a significantly higher percentage of cases with grandiose delusions in general paresis than in the manic-depressive psychoses or schizophrenia. The comparisons made apply to both sexes with the exception that in general paresis the number of females is too small to draw satisfactory conclusions.

Detailed two-way association tables were made for each sex and diagnosis showing the relation between delusions and each of the following:

- (1) Marital condition.
- (2) Age at admission.
- (3) Birthplace of patient.
- (4) Religion.

* Theoretical (expected) frequencies were computed in order to see how they compared with the observed frequencies. The following formula was used for testing significant differences between the observed and expected frequencies:

$$\frac{\text{observed} - \text{expected}}{\sqrt{\text{expected}}} \text{ greater than 2.}$$

- (5) Personality traits.
- (6) Intelligence.
- (7) Somatic data.
- (8) Hallucinations.
- (9) Duration of attack previous to admission.
- (10) Previous attacks.
- (11) Alcoholic habits.
- (12) White blood count.

A table of this type is given for the purpose of illustration, showing the relation between delusions and marital condition in the 613 females diagnosed manic-depressive psychoses. Theoretical fre-

TABLE II
RELATION BETWEEN DELUSIONS AND MARITAL CONDITION IN 613 FEMALES
DIAGNOSED MANIC-DEPRESSIVE PSYCHOSES
(1923-1927)

Marital condition	Delusions (Observed)								Total number of patients
	None	Grandiose	Religious	Erotic	Hypochondriacal	Persecutory	Unspecified	Unknown	
Single. . . .	107	9	19	14	17	35	48	31	246
Married. . .	110	11	19	11	23	75	57	36	292
Widowed. . .	19	4	3	3	3	12	4	8	45
Divorced. . .	10	..	1	..	..	..	1	1	13
Separated. .	6	2	2	1	2	3	2	1	13
Unknown. . .	1	1	2	1	..	..	2	0	4
Total. . . .	253	27	46	30	45	125	114	77	613

quencies were computed for each cell by the method described in "The Application of Statistical Method to the Study of Mental Disease," Elkind and Doering, pp. 799 *et seq.*¹ There proved to be very close agreement between the observed and expected frequencies except in the column "persecutory delusions." The expected frequencies for single, married, widowed, run 50, 60, 9 respectively as against 35, 75, 12 observed. We see that the single manic-depressive females in this sample show fewer persecutory delusions (35) than would be expected by chance (50) whereas the married females show more persecutory delusions (75) than would be expected (60). Further analysis of the association between delusions

and marital condition might be made by comparing this distribution of observed persecutory delusions according to marital condition of manic-depressive females with (1) that of manic-depressive males and (2) that of schizophrenic females. This detailed analysis has not been made in this table nor in the other two-way tables.

This five-year table illustrates the difficulty met in sorting and subsorting. The numbers in many cells are too small for any worthwhile comparison. This difficulty is more striking in the yearly samples. The five years were therefore lumped together thus committing the error of covering the yearly variations.

We now consider associations between delusions and each of the 12 variables as shown in the two-way tables for each sex and diagnosis. These tables are not printed.*

(1) *Delusions and Marital Condition.*—In the manic-depressive group the males show nothing of significance, whereas single females show fewer and married females more persecutory delusions than would be expected. (See Table II.) In the schizophrenic group the males show nothing significant. Married females show fewer erotic delusions than would be expected. The general parietic group shows nothing of significance.

(2) *Delusions and Age at Admission.*—The manic-depressive group shows no significant association for either sex. The schizophrenic group shows a significantly greater number with no delusions in the age group 15-19. In the 20-24 year group the number is greater but not significantly so. The females show a significantly greater number of cases with no delusions in the early age groups, 15-19, 20-24, 25-29. They show less in other age groups. The females also show a significantly greater number of cases with persecutory delusions in the age groups above 40. The males show the same tendency with regard to persecutory delusions although the numbers are not significant. The general parietic group shows nothing of significance.

(3) *Delusions and Birthplace of Patient.*—(Birthplace is classified native born and foreign born.) No significant association is found in any of the groups. Foreign born in all diagnoses show slightly more persecutory delusions than would be expected. All

* The 72 association tables (for the 2 sexes, 3 diagnoses and 12 variables listed above) are not printed because of lack of space.

native born groups show slightly higher percentages than expected in the "no" delusion cells of tables.

(4) *Delusions and Religion*.—(Religion is classified as Protestant, Roman Catholic, Hebrew, others and unknown.) In the manic-depressive group Roman Catholic males show an excess of unknown delusions. Females show nothing significant. In the schizophrenic group nothing of significance is shown. In the general parietic group Hebrew males show an excess of grandiose delusions. The number of such cases, however, is small. The females show nothing of significance.

(5) *Delusions and Personality Traits*.—(Personality traits are coded normal, seclusive, suspicious, imaginative, abnormal unspecified, emotionally unstable, sexually unbalanced, and not stated.) In a previous communication² we have analyzed these personality traits in the different psychoses and pointed out the variations in personality traits from year to year, and some of the reasons for these changes. In the manic-depressive group there are fewer males than expected who are coded with seclusive personality and no delusions. More males than expected are found under seclusive personality and religious delusions and seclusive personality and hypochondriacal delusions. Fewer females than expected are coded with normal personality and erotic delusions. More than would be expected are coded with suspicious personality and persecutory delusions. In the schizophrenic group males coded sexually unbalanced run high in erotic, hypochondriacal, persecutory and unspecified delusions. Males coded emotionally unstable run higher than would be expected in religious delusions. Males coded normal personality show fewer persecutory delusions than would be expected. Females coded sexually unbalanced show more cases than would be expected having religious and erotic delusions. Females coded imaginative also run high in erotic delusions. In the general parietic group males coded normal personality have fewer persecutory delusions than would be expected. Females show nothing significant.

(6) *Delusions and Intelligence*.—(Intelligence is classified as superior, average, borderline, mentally defective and unknown.) In the manic-depressive group both sexes show more cases of superior intelligence with no delusions than would be expected. The numbers are small, however, 28 males and 19 females. In the

schizophrenic group the males show nothing of significance. The females show an excess of cases of borderline intelligence having no delusions, and fewer cases than would be expected of borderline intelligence with unspecified delusions. The general paretic group shows nothing of significance.

(7) *Delusions and Somatic Data*.—(Somatic data are classified as negative, endocrine, genitourinary, gynecological, others and unknown.) A careful study of somatic data for the first four years 1923-1926 has been made and reported.³ A study of the manic-depressive group shows nothing of significance for the males. The females show more with no delusions and negative somatic data than would be expected. Both the schizophrenic and general paretic groups show nothing of significance.

(8) *Delusions and Hallucinations*.—(Hallucinations were classified as none, auditory, visual, others and unknown.) All three groups show a positive association between no delusions and no hallucinations and between unknown delusions and unknown hallucinations.* In addition for the manic-depressive group both males and females show more cases having persecutory delusions and auditory hallucinations, and persecutory delusions and visual hallucinations than would be expected. In addition, the females show more cases than would be expected having religious delusions and auditory hallucinations. The schizophrenic group shows a large number of associations with many sex differences. Both males and females show more religious delusions and visual hallucinations than would be expected. In addition males show more cases than would be expected having persecutory delusions and auditory hallucinations, and unspecified delusions and other hallucinations. Likewise females show more cases than would be expected for the following associations: grandiose delusions and visual hallucinations, grandiose delusions and other hallucinations, religious delusions and auditory hallucinations, hypochondriacal delusions and other hallucinations. In the general paretic group the males show more cases than would be expected having persecutory delusions and auditory hallucinations.

* In all of the 72 groups reported there is found a tendency for association between unknown delusions and unknown for the other item associated with delusions. The degree of this tendency varies somewhat.

(9) *Delusions and Duration of Attack Previous to Admission.*—(Classified "under 31 days," "1-11 months," "1 year and over" and "unknown.") In the manic-depressive group males show nothing of significance. Fewer females than would be expected show hypochondriacal delusions and attack "under 31 days" whereas more females than would be expected have hypochondriacal delusions and attack "1-11 months." Unknown delusions occur more frequently in females with attack "under 1 month." Both the schizophrenic and general paretic groups show nothing of significance.

(10) *Delusions and Previous Attacks.*—(Previous attacks are coded none, with complete recovery, with incomplete recovery, with no information about recovery and unknown.) In the manic-depressive group the males show nothing of significance. The females show fewer cases than would be expected coded unknown as to previous attacks and having no delusions. The schizophrenic and general paretic groups show nothing of significance.

(11) *Delusions and Alcoholic Habits.*—(Alcoholic habits are classified abstinent, temperate, intemperate and unknown.) The manic-depressive groups show nothing of significance. In the schizophrenic group the males show more cases than would be expected coded abstinent and with no delusions. They also show fewer cases that are coded temperate and with no delusions than would be expected. The females show nothing of significance. In the general paretic group the males show more cases than would be expected in the abstinent group with no delusions. Females show nothing of significance.

(12) *Delusions and White Blood Count.*—(The total number of cases in this association is 2064 including admissions from April, 1924 to December, 1927. This is due to the fact that white blood counts were not made a part of the routine laboratory procedures until April, 1924.) In the manic-depressive group the males show nothing of significance. The females show more cases than would be expected having unspecified delusions and a white blood count of 15,000 and over. The schizophrenic and general paretic groups show nothing of significance.

SUMMARY.

A statistical study of delusions in 1009 cases of manic-depressive psychoses, with 1408 cases of schizophrenia and 496 cases of gen-

eral paresis as controls leads to the following conclusions: delusions are absent in 43 per cent of the males and 41 per cent of the females in the manic-depressive group as compared with 10 per cent of the males and 7 per cent of the females in schizophrenia, and 39 per cent of the males and 42 per cent of the females in general paresis. The most common type of delusion to occur in the manic-depressive psychoses is the persecutory type which was present in 20 per cent of cases of manic-depressive psychoses. Persecutory delusions were likewise the most common delusion to occur in schizophrenia, there being 54 per cent of the males and 58 per cent of the females having such delusions. The incidence of persecutory delusions in general paresis was practically the same as in the manic-depressive psychoses, but males showed 27 per cent and females 12 per cent of grandiose delusions indicating that grandiose delusions are the most common type to occur in general paresis. The schizophrenic group shows a consistently higher percentage of religious and erotic delusions than do the manic-depressive group whereas the grandiose and hypochondriacal delusions show no significant differences.

In an endeavor to determine what other factors besides diagnosis and sex might determine the presence of delusions or the type of delusions detailed two-way association tables were made for each sex and diagnosis showing the relationship between delusions and each of the following conditions: (1) Marital condition; (2) Age at admission; (3) Birthplace of patient; (4) Religion; (5) Personality traits; (6) Intelligence; (7) Somatic data; (8) Hallucinations; (9) Duration of attack previous to admission; (10) Previous attacks; (11) Alcoholic habits; (12) White blood count.

Marital condition apparently has little to do with the type of delusion, the only things noted being that among the single females with manic-depressive psychoses persecutory delusions were fewer than would be expected, and in married females with schizophrenia fewer erotic delusions occurred than would be expected.

Age shows nothing of significance for the manic-depressive and general paretic groups, but does show that in persons with schizophrenia delusions are less frequent among younger persons.

The birthplace of the patient shows no important effect upon the incidence or type of delusion for all three groups.

Religion apparently has very little influence on the occurrence of delusions. It was noted however that Hebrew males in the general paretic group showed an excess of grandiose delusions.

The pre-psychotic personality of the patient seemed to show several significant associations with the number and types of delusions. In general these associations show no consistent pattern except that in the schizophrenic group the sexually unbalanced personalities correlated with a number of different types of delusions.

Intelligence seems to have some relationship to numbers and types of delusions. In the manic-depressive group there are more cases of superior intelligence with no delusions than would be expected. This tendency is not found in schizophrenia where in the females the cases of borderline intelligence show a correlation with no delusions. The general paretic group shows nothing of significance.

There is little correlation between delusions and somatic data, the only significant finding being that there are more manic-depressive females with no delusions and negative somatic data than would be expected.

There is considerable correlation between delusions and hallucinations. In all three groups there is a positive association between no delusions and no hallucinations and between unknown delusions and unknown hallucinations. The most striking correlation is between persecutory delusions and auditory hallucinations which show a positive association in all groups except schizophrenic females.

The duration of attack previous to admission has very little effect on the delusional formation of the patient, the only significant finding being fewer hypochondriacal delusions in manic-depressive females where the attack is under 31 days, and excess of hypochondriacal delusions where the attack has been from 1-11 months.

The occurrence of a previous attack seems to have no important effect upon the number of types of delusions for all three types of mental disorder.

With regard to alcoholic habits the only important findings seem to be that no delusions occur more frequently in schizophrenic and general paretic males who are abstinent and in schizophrenic males who are temperate.

There is no significant association between the white blood count and delusions.

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THE DEHYDRATION METHOD IN EPILEPSY.

By D. EWEN CAMERON, M. B., CH. B., D. P. M.,
Manitoba Hospital, Brandon, Manitoba.

The investigation here reported was undertaken in order to test, so far as the material available might warrant, the validity of the dehydration method of treatment in epilepsy. For the purposes of the enquiry there was utilized a series of twelve typical institutional cases from the wards of the Manitoba Hospital, Brandon. These patients had suffered epileptic seizures for periods ranging from 3 to 39 years. The method followed is that recently outlined by Temple Fay.¹

THEORY.—The rationale of the treatment as described by Fay is briefly as follows: He regards the subarachnoid villi as playing a most important part in the absorption of cerebrospinal fluid. They may be congenitally absent, or may suffer injury during development or later. When this occurs excessive accumulations of cerebrospinal fluid may take place. From this point he advances his argument:

With sclerosis consequent to hemorrhage, inflammation or trauma, or impairment of the fluid spaces in the presence of a supracortical edema sufficient to stretch the thickened and adherent arachnoid attachments, there would be produced a form of sub-minimal stimulation that would be a predisposing, sensitizing generalized factor (at times focal in post-traumatic cases) variable depending upon fluid intake and overloading of the compensating threshold of the absorption mechanism (subarachnoid villi-Pacchionian granules).

That in the presence of a circulatory disturbance (cerebral anæmia) there would be produced increased intracranial pressure with further transudation of fluid into the tissues (anoxemia), increased arachnoid distension and traction due to arterial pulsations, these form sub-minimal stimuli, the summation of which precipitate or predispose to the final discharge of motor cortical impulses through the final common pathway for such movements.

That with the control of spinal fluid production to a point within the threshold of compensation of the subarachnoid villi, or Pacchionian bodies, by limitation of fluid intake (dehydration) in the patient, this predisposing factor would be withdrawn and the vicious cycle existing between the cerebrospinal fluid system as a predisposing agent and the vascular system as a precipitating factor, broken.

TABLE I.

Case No.	Age.	Duration of attacks.	Type of attacks.	Other phenomena.	Average no. of attacks without medication.	Average no. of attacks on medication.	X-ray.	Deterioration.	Neurological.
1.....	45	3 yrs.	G. M.	Epileptic Excitements.	.....	1-2/wk.	.....	Moderate.	
2.....	24	14 yrs.	G. M.	.....	.....	1/wk.	.....	Marked.	
3.....	44	32 yrs.	G. M. & P. M.	Deliria.	P. M. 2-3/day; G. M. 2/day.	.....	Evidence of plus pressure.	Very marked.	Pupils unequal. Mild facial weakness.
4.....	17	7 yrs.	G. M.	.....	.....	5-6/wk.	.....	Marked.	
5.....	39	17 yrs.	G. M.	Deliria.	1/day	.....	Negative	Moderate.	
6.....	16	16 yrs.	P. M. & G. M.	.....	11/wk.	7/wk.	.....	Marked.	
7.....	29	15 yrs.	G. M.	Delusions.	4/wk.	3/wk.	.....	Marked.	
8.....	22	17 yrs.	G. M. & P. M.	Deliria, Hallucinations.	4/wk.	6/mnth.	.....	Moderate.	
9.....	53	29 yrs.	G. M. & P. M.	Epileptic Excitements.	6/wk.	.....	.....	Severe.	
10.....	42	9 yrs.	G. M.	.....	1/wk.	.....	.....	Severe.	
11.....	24	10 yrs.	G. M.	Epileptic Excitements, Delusions.	.....	1/wk.	.....	Slight.	Pupils unequal.
12.....	41	39 yrs.	G. M.	Deliria, Hallucinations.	.....	6/mnth.	.....	Marked	R. sided weakness.

MATERIAL.—From Table I may be seen at a glance the nature of the material worked with. All the cases were more or less deteriorated; from none did we receive consistent cooperation. All had had fits over a period of years. Therefore should the frequently stated but, so far as I am aware, never proven axiom that the repetition of fits results in a facilitation of that reaction be valid, the material was the more unpromising. In considering the findings these facts are to be borne in mind, lest wider conclusions be drawn than the material will yield.

GENERAL PROPOSITION.—It was considered that should the theory advanced be applicable to the material on hand, the following contentions should be correct.

(a) That reduction in fluid intake should cause a reduction in the number of fits; that where this occurred in the absence of concomitant phenomena, *e. g.*, acidosis, a more or less directly causal relationship might be postulated.

(b) That on water being given freely after a period of dehydration the number of fits ought to be increased over that observed during the period of dehydration. A reservation to this was to the effect that it was conceivable that the mooted habit theory might possibly operate here. Muskens² states that after a more or less prolonged period of successful bromide therapy withdrawal of the drug is not followed by a return of the fits. The suggested reason for this being that the fit habit had been broken up.

(c) That where fluids were forced even in the absence of previous dehydration the number of fits should be increased. On further reflection this contention was felt to be much invalidated by the possibility that the "all or nothing law" might operate here. The results are none the less given, firstly because this could not be proven, and secondly because, even should it be so, one might expect that an increased accumulation of cerebrospinal fluid might manifest itself in such common symptoms as increased headache, increased dullness. It seemed to be equally reasonable to expect that increased fluid intake might result in greater cerebrospinal fluid production as *vice versa*.

TECHNIQUE.—A diet of low water content was worked out. Both the water actually present in the food, and that which might be expected to arise from the oxygenation of the hydrogen content, were estimated. The methods of Soderstrom and DuBois³ were

employed. It was not found feasible to construct a diet of adequate caloric value and having as its ultimate water yield less than 600 c. c. This diet, together with varying additions of water, was given constantly. Elimination was hastened during the first few days by magnesium sulphate, and an attempt was made to increase the elimination of fluids by means of various diuretics.

FINDINGS.—The findings are discussed in regard to the three contentions advanced earlier.

CONTENTION A.—*That reduction in the fluid intake should cause a reduction in the number of fits.*

From Table II will be seen the effects of varying degrees of dehydration. The numerator of the fraction represents the total

TABLE II.
EFFECTS OF VARYING DEGREES OF DEHYDRATION.

Case No.	First, 4 weeks.	Second, 4 weeks.	Third, 4 weeks.	Fourth, 4 weeks.	Fifth, 4 weeks.	Sixth, 4 weeks.	Seventh, 4 weeks.
1.....	4/600	4/900	6/850	3/800	7/720	No record	1/1030
2.....	3/700	3/600	3/950	4/900	Stealing	1/760	11/700
3.....	18/1300	22/1000	38/720	9/700	17/740	27/1200	16/770
4.....	4/850	23/1100	9/800	20/740	8/700	16/760	6/700
5.....	5/780	9/1140	9/950	14/1440	Discharged	.....	.....
6.....	.....	.....	.....	45/1890	35/2500	19/1000	34/830
7.....	.....	.....	.....	9/1800	31/2500	5/1000	7/850
8.....	.....	.....	.....	11/1950	12/2500	7/930	11/900
9.....	.....	.....	.....	23/1760	48/2500	8/900	3/860
10.....	.....	.....	.....	.....	0/2500	2/950	1/950
11.....	.....	8/1100	Died	.....	.....	.....	.....
12.....	18/760	17/1000	13/1000	.....	.....	.....	.....

number of fits during a period of four weeks. The denominator represents the average daily fluid intake during that period. No special significance is attached to the fraction as such.

From the table it will be seen that the average fluid intake shows in some cases marked rises. These were necessitated by serious loss of weight, acidosis or nitrogen retention. In regard to the effect on the number of fits, this may be summed up as being unsatisfactory and inconstant. In some cases the number of fits is increased over that found to be the average for periods of unchecked fluid intake, in others it varies irrespective of the degree of dehydration. In none is there a marked and constant reduction.

CONTENTION B.—*That on water being given freely after a period of dehydration the number of fits ought to be increased over that observed during the period of dehydration.*

As the results of dehydration had been unsatisfactory, it was decided to abandon the diet, and as a final check the patients were abruptly given unlimited fluids. The results are shown in Table III.

The figures given in the seventh column of Table II are those obtained in the four weeks just prior to the period of unlimited fluids. The fit figure given is that for the *monthly* total. The findings here too are unsatisfactory. While certain cases show an increase in the number of fits, the increase often bears no relation to the amount

TABLE III.
EFFECTS OF GIVING UNLIMITED FLUIDS AFTER DEHYDRATION.

Case No.	Average daily intake. Total number of fits per week.			
	First week.	Second week.	Third week.	Fourth week.
1.....	3/1490	0/1280	5/1330	0/1500
2.....	2/1120	0/1080	0/1140	1/1280
3.....	5/2000	4/1440	15/1300	6/1370
4.....	13/1770	10/1140	4/1150	1/1240
5.....	0/1670	9/2220	.....	.....
6.....	9/2170	7/2680	12/2980	4/3060
8.....	5/2890	3/2900	1/3040	0/2830
9.....	2/1900	5/2000	3/2150	0/2250

of fluid taken. Moreover, they are offset by cases where there was no increase, and cases where there was actually a diminution. In no case did we meet with a burst of fits save in No. 3. In this case the burst did not occur until the third week of unchecked fluids, and further, a similar and rather more severe burst, had occurred on full dehydration. (See column 3, Table II.)

CONTENTION C.—*That where fluids were forced, even in the absence of previous dehydration, the number of fits would be increased.*

The results are seen in Table IV. The daily fluid intake was fixed at 2500 c. c. The total number of fits for the *four* weeks preceding this experiment, together with the average daily fluid intake for that period, will be found in Table II, column 4.

As will be seen from the table, the results are once more conflicting and unsatisfactory.

OTHER FINDINGS.—

(a) The action of diuretics which were most conveniently and effectively given in the form of double strength Imperial Drink, was to increase the percentage of fluid excreted. There was little or no effect on the number of fits.

(b) The Effect on Disposition. In one case, No. 5, there seemed to be a definite improvement. Attacks of irritability were fewer, and the patient himself said that he felt less cranky and that his mind seemed clearer. Another patient, Case No. 3, became quicker in response, but more irritable. Since he has been returned to full

TABLE IV.
EFFECTS OF PUSHING FLUIDS TO 2500 C. C. DAILY WITHOUT
PREVIOUS DEHYDRATION.

Case No.	Total number of fits per week.		
	First week.	Second week,	Third week.
6.....	4	9	10
7.....	3	17	5
8.....	1	4	0
9.....	0	9	17

fluids he has become much slower mentally and less irritable. Several of the women patients were found easier to nurse during dehydration. This, however, was felt to be due to the lassitude from which the women, in particular, suffered. The rest were rather more irritable. They chafed at the restrictions, and clashes with the staff were rather frequent.

DIFFICULTIES IN CARRYING OUT THE DIET.—Certain difficulties were encountered.

(a) Stealing. From the first week or so the patients stole, or attempted to steal food or drink on every opportunity. They took snow from the window ledges, water from flower vases, and food from other patients' trays. Ultimately they had to be confined on a special ward and kept under the closest observation. Where serious stealing took place the results have been eliminated from our calculation.

(b) Loss of Weight. The loss of weight in certain cases was serious, *e. g.*, two cases each lost fifteen pounds in the first two weeks. The general tendency, however, was for a gradual return to a level a trifle below the normal weight. This occurred even where the fluid intake was further reduced.

(c) Nitrogen Retention, Acidosis. On two occasions stuporous states, on two occasions excited states, and on one occasion a state of excitement passing into a stuporous state, developed. They all occurred on full dehydration, and in all cases similar states had occurred prior to dehydration. They were all characterized by an increased blood urea nitrogen, up to 40 mg. In the excitements an acidosis developed. Irrespective of whether an acidosis was present or not, no fits occurred during these states. The occurrence of a fit heralded recovery. In each case there was a preliminary period during which the urinary output was low. It is to be noted that the return of the blood urea nitrogen to normal levels, the re-establishment of an adequate urinary output, and the disappearance of acidosis, did not curtail one of the cases of excitement, nor did it terminate the case of excitement passing into stupor. The resistance of the patient during these states was found to be low. Fluids, diuretics and heart stimulants had to be pushed actively.

A fatality occurred in Case No. 11. In this case Novarsurol $\frac{1}{2}$ c. c. had been given to increase excretion. Following this there was a heavy deposit of albumin. The patient grew very excited, refused nourishment, and acidosis developed, and there was some degree of nitrogen retention. Sudden collapse and death followed. The post mortem report from the pathologist, Dr. M. McKenzie, stated that the heart and kidneys were small, the stomach mucous membrane degenerated, with complete destruction in places. Blood vessels were congested and there were areas of hemorrhage. The kidneys had the appearance of having been attacked by a strong toxin; the left kidney also showed a condition of chronic nephritis.

SUMMARY.

1. Dehydration was carried out on a series of typical institutional epileptics.
2. Dehydration had no definite effect on the occurrence of fits, or on the patient's disposition.

3. The giving of unlimited fluids after a period of dehydration, and the forcing of fluids without previous dehydration, had no definite effect on the number of fits.

4. The patients were adversely affected by the diet. Preliminary loss of weight was severe. The patients' resistance was lowered. Nitrogen retention either precipitated or complicated stages of excitement and stupor, and acidosis occurred during the excitements.

CONCLUSION.

The results obtained from our series of twelve cases are such that this method would appear to be of little value in the treatment of typical institutional epileptics. This conclusion is reinforced by the injurious effects on the patients.

The author desires to express his indebtedness to Dr. C. A. Baragar, superintendent of the hospital and to members of both medical and nursing staffs for their cooperation and assistance in carrying out this investigation.

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TREATMENT OF MANIC-DEPRESSIVE PSYCHOSIS.*

A SURVEY OF THE LITERATURE.

By LELAND E. HINSIE, M. D.,

AND

SIEGFRIED E. KATZ, M. D.

INTRODUCTION.

The present contribution attempts to survey the main trends of therapy in the manic-depressive psychosis during approximately the past half-century. Although much of the literature is referred to, it is the aim mainly to indicate trends of thought, so that future avenues of approach might be inferred. It is hoped that the method of presentation will be considered reasonably uncritical. The reader will be impressed with the relative brevity of the body of this contribution as compared with the bibliography. A certain degree of critical judgment had to be exercised with regard to the former; but it should be kept in mind that the object of the paper is to point out *trends* of psychiatric interest.

The term "manic-depressive psychosis" is taken in this contribution to be the equivalent of the expression "maniacal-depressive insanity," introduced by Kraepelin in 1899. It includes not only the various forms of "circular" reactions, but also mania and melancholia, as different clinical forms of one clinical entity. In later editions of his book Kraepelin added presenile melancholia and the relatively rare presenile mania as late manifestations of the same clinical unit. He defines the syndrome as follows: "Manic-depressive insanity is characterized by the recurrence of groups of mental symptoms throughout the life of the individual, not leading to mental deterioration. These groups of symptoms are sufficiently defined to be termed the manic, the depressive, and the mixed phases of the disease. The chief symptoms usually appearing in the manic phase are psychomotor excitement with pressure of activity,

* From the Clinical Department of the New York State Psychiatric Institute and Hospital.

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flight of ideas, distractibility, and happy though unstable emotional attitude. In the depressive phase we expect to find psychomotor retardation, absence of spontaneous activity, dearth of ideas, and depressed emotional attitude; while the symptoms of the mixed phase consist of various combinations of the symptoms characteristic of both the manic and depressive phases." This definition is not essentially different from that given by the French under the terms *folie circulaire* and *folie à double forme*. The French had coined their expressions at an earlier date, Falret (*Leçons cliniques de médecine mentale*) describing a *forme circulaire* in 1851 and Baillarger referring to *folie à double forme* in 1854. Both referred essentially to the same clinical syndrome. Earlier authors without exception regarded mania and melancholia as separate clinical entities. Among the latter were Pinel, Esquirol, Guislain, Griesinger, and others.

There has never been unanimity regarding the position of involution melancholia. Kraepelin excludes it from the manic-depressive group.

At just what period the term manic-depressive psychosis acquired the meaning that is given to it today is an academic question that need not detain us. Furthermore, it will be noted that the vast majority of references *follow* the period of nosological indecision, other than those few indecisions that still exist.

Insofar as therapy is referred to, there have been several more or less well-defined disciples. It is, perhaps, useful to indicate them chronologically, whenever that can be done without interfering with the continuity of the subject-matter.

In earlier times the treatment of manic-depressive psychosis was almost exclusively symptomatic. Moreover, therapy was confined to the psychotic phases and efforts were largely restricted to measures that would preserve the patient's strength until such time as he spontaneously recovered. It was also the time when "moral" treatment was in vogue; the latter was the forerunner of the more intensive and elaborate psychotherapeutic procedures. Griesinger gave an excellent account of "moral" treatment in the second edition of his "Mental Pathology and Therapeutics." It may help to give us a clearer orientation to quote *in extenso* from Griesinger:

Mental activity, constantly employed on account of its indirect action on the organic processes, is also used to call up ideas, images, feelings, and

efforts, for the purpose of directly modifying mental anomalies. This is effected only to a slight extent by any positive influence exerted by the physician upon the patient, such as exhortation, encouragement, or even surprises, punishments, looks, etc.; much is gained by negative measures. Often even the gait of the patient is such as to admit the hope of a rapid spontaneous cure; in such a case the removal of all exciting causes, and a proper regulation of the external circumstances, are frequently sufficient, especially if the patient has also the feeling of a subjection to a rational and well-meant control, and is being gradually habituated to proper outward behavior.

The more direct moral action, for the purpose of restoring mental health, may again be reduced to two indications, which may be understood quite as well from a profound theoretical acquaintance with insanity, as from the practical knowledge of a successful system of treatment. In the first place the morbid dispositions and ideas which repress and conceal the former (healthy) individuality must be uprooted and destroyed; in the second place, the old ego, which in insanity for a long time is not lost, but only superficially repressed, or hidden in a storm of emotion, behind which it remains for a long time capable and ready to re-establish itself, must, as far as possible, be recalled and strengthened. If, as we have already hinted, there is some analogy between the moral treatment of the insane and the art of education, in the aim proposed and the means employed, they present, however, essential differences in the latter respect. For in the moral treatment of the insane the creation of new ideas is not contemplated, but the re-establishment of the old; it does not contemplate any improvement on the ego to be replaced, the realization of which is the great object of education (*e. g.*, to make it moral); but the sole object is the replacement of the former healthy ego, whether it may have been distinguished by virtues or obscured by manifold defects. Any attempts at improvement can only be useful after recovery. If the success of education is favored by pliability of disposition, so the moral treatment of insanity is most successful where the ego, already formed, fixed, and only temporarily repressed, for a long time waits the opportunity to resume its former place, and sometimes even struggles with all its powers against the disease. Hence, it results that very often merely negative moral treatment is sufficient, *vis.* the simple removal of all hurtful influences. Is it, then, wonderful that so many of the insane completely recover in the hands of rough and unskilled persons?

As to the first indication, namely the weakening of the morbid dispositions, feelings, and ideas, the most extended experience shows that we seldom arrive at a favorable result by directly opposing them. The diseased mind, even on account of its morbid state, will not receive remonstrances and advice, much less moral representations; above all, it will not suffer the procedure ordinarily directed against the bad dispositions of persons in health. This ill-humor proceeds necessarily from disease of the brain, and the patient can no more divest himself of it by an act of will, than the subject of irritation of the retina can escape the colored images which result from it. Much can be

done to remove this ill-humor by physical treatment, by rational expective treatment, whereby the feeling may sometimes be got rid of by permitting its outburst as in mania; sometimes the symptoms may be repressed, but their diversion by moral means, which is soon to be spoken of, is always the principal object. Quite as useless and even more injurious than such simple exhortation, is any attempt directly to overcome the delusive ideas of the patient by logical reasoning. All direct, especially passionate, discussion generally augments the delusion by instigating the patient to justify his views, seek reasons for them, and irritates and exasperates him according to the force and acuteness of his opponent's arguments; the raillery which always accompanies such reasoning is also injurious to him. The morbid ideas are not to be subdued by any kind of proof or evidence. To spread all his wealth before a patient who thinks he is ruined, to pull down the wall in which another fancies his tormenting enemy is hid, would only irritate them and call their attention more forcibly to their false ideas; in very favorable cases we may obtain an apparent consent and compliance; most commonly, however, they will only substitute one form or delusion for another of a worse kind. All this will be sufficiently explained by what has been said upon the manner in which insane ideas originate from dispositions being fixed; only by the removal of these is the insanity to be thoroughly uprooted.

The question of *restraint* has always been important to psychiatrists. Again, one could not do better than refer to the writings of Griesinger, who gives an admirable review of the subject. The abolition of the various forms of mechanical restraint marked an epoch of tremendous importance to the advance of psychiatric treatment and gave rise to a more humane period of so-termed "chemical" restraint. It certainly was not the aim of the pioneers to substitute the one for the other, but evidently circumstances were such that some ready means of reducing overactivity had to be resorted to. Among those circumstances the great influx of patients to psychiatric hospitals played a big part.

Of mechanical restraint Griesinger had the following to say:

External means of restraint are employed with the view of preventing the patient from inflicting injury to himself or others, to prevent that rage and fury, especially such manifestations of his insane desires as would afford them new nourishment, and thereby to aid in his self-control. Besides, they should serve to make him sensible of an external force against which his own exertions are powerless, to bend his will, and subdue obstinacy and a refractory spirit. The means employed should never be such as in the least to wound the self-esteem of the patient; they should never be suggestive of a house of correction (as chains and blows), neither should they shock the imagination, as did those great apparatus which were used till very recently in many places. At the present day, the strait-jacket (which is of linen) is

the principal means of restraint still in use; it allows to the patient little or no use of his arms and hands. In many asylums the constraint-chair is still used—an arm chair in which the patient is confined; straps also to fasten him down in bed.

It was abuses which formerly were invariably connected with the employment of bodily restraint which, about twenty years ago, originated in England the opposite system, the total banishment of all means of mechanical restraint from the treatment of insanity. This method known as the system of non-restraint, first (1838) tried by Gardiner Hill in the Lincoln Asylum, was fully developed by Conolly in Hanwell in 1839, and within the last ten years has been adopted in nearly all English asylums. Its advantages have been as much praised as they have been disputed. The principal argument in favor of this system, is its greater humanity and its easier quieting of the patient, who is often rendered more irritable by mechanical coercion. It has been affirmed that the patient is thus more habituated to self-observation and control, that he is raised in his own esteem, and that by it arbitrary violence on the part of the attendants is rendered impossible. It is alleged that in those asylums where this method has been adopted the patients have been rendered calmer, more submissive and cheerful, and the recoveries more numerous and permanent. In occasional rare cases of necessity, the use of mechanical means is nevertheless conceded.

Pharmacotherapeutic measures for the treatment of patients in the manic-depressive group reached the peak in the latter part of the nineteenth century and in the early part of the twentieth century. There was a feverish trend to find a suitable narcotic or sedative. One could add to the bibliography a couple hundred references to the question of sedation. Fortunately within the past few decades the tendency towards sedation has steadily diminished. It is not at all unlikely that the introduction of more refined measures has been largely responsible for the curtailment of drug therapy.

About the middle of the nineteenth century very few drugs were used in the treatment of the conditions then called mania and melancholia. The huge volumes of Trousseau and Pidoux (*Treatise on Therapeutics*, translated by Lincoln, and published in 1880) contain meager references to the treatment of "insanity." It is interesting to note that deep narcosis by inhalation was tried at about this time; but, as the authors claimed, "the attempts . . . have been followed by no really conclusive results." Chloroform was employed to produce the narcosis. Likewise, results were not particularly favorable with the use of antispasmodics, of belladonna, camphor, opium, stramonium, and a number of tonics.

Thus far one might conceive the efforts at therapy in the light of preliminary trials. Psychiatrists had labored long and assiduously, first to assemble mental patients under a single roof, in a suitable setting. They formed a heterogeneous conglomerate, these people who had been culled from jails, almshouses and various other public and private institutions that held the patients in horror. Then the period of classification and symptomatic treatment set in. In the nineties of the last century classification was arranged sufficiently well to permit certain leaders to make more intensive investigations into fairly homogeneous groups. Kraepelinian nosology provided the real stimulus. Meanwhile one was beginning to feel the influence of therapeutics. The time was ripe to reconsider Bernheim's views on suggestion therapy. It will be remembered that he emphasized that "the mind is not a negligible quantity. There is such a thing as psychobiology. There is also such a thing as psychotherapy. This is a powerful lever, and one which the human intelligence and medical therapeutists must turn to full account." This was a challenging statement, but it received considerable endorsement. Probably one of the most important stimulants to the study of psycho-physical phenomena had its origin in hypnotism, which enjoyed its palmiest days from about 1888 to 1896. Everyone was hypnotizing or suggesting. Finally the method fell into disrepute and was left to the field of charlatanry.

The question of "induced somnambulism" was a life work with Richet, but it remained for Charcot at Salpêtrière to discuss the phenomenon with some degree of scientific acumen. From the school of Charcot there issued the three states known as lethargy, catalepsy and somnambulism. Charcot wanted to investigate further, but as Janet says, sick people want to be cured. Hence, the Nancy school, led by Bernheim, embarked upon an intensive therapeutic program of hypnosis. When in 1891 Babinski showed how vague the claims of Charcot and Bernheim were, he marked the decline of both schools. Janet says that "major hypnotism has lost all semblance of interest." In a later passage he writes:

Such a decadence, so rapid a disappearance after such high enthusiasms and such extensive developments, is certainly surprising. Those of a future day who are interested in the history of medicine will study this period with much curiosity, and will discover many cogent reasons to account for the sharp curve in medical theory and practice. For my own part, I have no

such ambition, and am content to regard the decline of hypnotism as one of those transient eclipses to which the whole psychotherapeutic movement has been prone.

At about this time also there developed some interesting conceptions that were subsumed under the expression "traumatic memory," conceptions that opened up new vistas and that, among other formulations, comprised the opening wedge into the school called psychoanalysis. In 1884 and 1885 Charcot was able to demonstrate that in hysteria all of the emotional factors following an accident could not be explained by the accident alone. Moebius and Janet did much to substantiate Charcot's theory. Research into "traumatic memories" occupied the attention of several eminent investigators. Janet studied his patients with extreme thoroughness, hoping to establish some relationship between lost, submerged memories and the morbid symptoms presented by the patients. Charcot had already advanced the opinion that suggestion was in some way related to the mechanism of "traumatic memories." Janet thought the mechanism had to do with what he called "psychological automatism."

At this point Breuer and Freud entered with their studies. They had been inspired by the formulations of Charcot and Janet in particular. The field was soon narrowed down to Freud. The term "unconscious" and its many connotations were widely accepted and elaborated upon. Freudian doctrines have received their most intensive applications in the psychoneuroses, but there have been exponents who have investigated their probable influence upon the psychoses, or, as they are called by the psychoanalysts, the "narcissistic neuroses."

In this same era Jung revived an old experiment—the association tests—and put the scheme to intensive clinical study. Moreover, his contributions to the further knowledge of the "collective unconscious" have been a remarkable stimulus.

In the United States Adolf Meyer has been instrumental in focussing attention upon the functional psychoses. He has not allied himself with any special school of thought. He has served as an unusual moderator, although in so doing he has not sacrificed a progressive and optimistic attitude. He has persistently stressed the attitude of investigation without dogmatism.

Summary.—In this brief manner, then, the background of the treatment of the manic-depressive psychosis is presented, with the hope that it may offer means of gauging the merits of the individual contributions that are about to be given in some detail. Obviously these prefatory remarks have been restricted to the issues bearing upon the subject of this assignment, viz., the treatment of the manic-depressive psychosis. Perhaps such a restriction is a fault. Still, if the reader is impressed with the idea that our clinical and therapeutic programme has made definite upward strides, it may be reasonable to assume that further investigations will be seasoned with no small flavor of optimism.

PROPHYLAXIS.

Sometimes one loses sight of the fact that there are several important factors, non-medical in the strictest sense, upon which progress in medicine is dependent. Research work and its results must rely upon training; to train or teach there must be the teaching material, housed satisfactorily; there must be the equipment necessary to carry out therapeutic indications. From the improvised dwellings built near the temples of Aesculapius to the modern psychiatric hospitals is a grand move. And it may be agreed by some that the twentieth-century psychiatrist is in advance of his old Grecian colleague, an Asclepiade.

It is, then, a matter of no small consequence that there has been a steady upward trend in the development of housing facilities; and a history of psychiatry must reckon with this trend as one of the most significant in the psychiatric field. In the middle of the nineteenth century Griesinger claimed that "with the erection of such efficient institutions, the therapeutics of insanity have in most countries, within the past forty years, made the most extraordinary progress. Thus, in Germany, where theoretical psychology was almost entirely devoted to the discussion of abstruse questions—practical efforts have almost in a single season been made the chief regulations of asylum practise, and that with the best results; and in this matter, Jacobi's exertions to introduce the English practice into Germany has had an unprecedented and most beneficial effect." A large share of progressive measures in psychiatry are due to the pioneers who exercised themselves in matters indicated by the

following caption: "Observations on the Structure of Hospitals for the Treatment of Lunatics and on the General Principles on which the Cure of Insanity may be most Successfully Conducted" (1809). For a proper orientation of our present status, the historical approach is indispensable. One of the most significant contributions from this standpoint was made by L. Vernon Briggs, who in twenty-four pages created a psychiatric attitude that is almost without parallel. His summary is worth repeating.

Psychiatric wards in general hospitals would be the means of preventing insanity in a very large proportion of cases because:

First. The incipient case would have the advantage of immediate expert care by members of the hospital staff of physicians composed of every branch of medicine and surgery.

Second. He would have the advantage of a large hospital nursing staff in place of a few attendants.

Third. Suicide and attempts to suicide would often be prevented.

Fourth. The social considerations after recovery are most important to patients, 50 per cent of whom would be saved from being placed in an insane institution.

Fifth. An opportunity would be provided for clinical instruction to physicians and medical students which would result in the whole profession earlier recognizing incipient cases, an enormous gain to our profession and a greater gain to the public.

Although Briggs' suggestions were made only two decades ago, great strides have already been made. To be sure Briggs' ideas were not new, but he is deserving of much merit as one in a long series of investigators who stimulated progressive measures, which, although not specifically directed to any special group, have exerted profound influences on all.

The present-day psychiatrist is to some extent spared the inconvenience of being both architect and psychiatrist, yet admirable successes in the psychiatric field resulted from just such an hyphenation of industry. Briggs informs us that Esquirol (1772-1840) was his own architect.

The value of suitable hospitals for the treatment of mental disorders can not be over-emphasized. The trend is remarkably evident towards construction of psychiatric hospitals in intimate relationship with general hospitals. The value of this movement is manifold; a significant feature is the facility for the study of early and borderland types of mental disturbances. It is well known that

a large share of the patients who eventually are committed to hospitals because their mental symptoms are far advanced are often treated in general hospitals when their symptoms are mild, when their symptoms are appreciably amenable to therapy. Interests are now being directed to that group and those psychiatrists who spend a fair share of their time on the wards of general hospitals are rewarded with successes that can not be expected in hospitals that receive a vast majority of full-blown psychoses of relatively long standing. Moreover, it is a great asset to treat a patient in an environment that is not permeated with public reserve and aloofness. It is one of the fundamental laws of psychiatry that a proper environment is a first requisite to favorable therapy. Obviously suitable hospitals are indispensable. Indeed if any one item of progress in the management of mental disorders had to be singled out, it is difficult to conceive how this trend toward good hospitals in good locations could take other than first place.

These brief allusions to architecture are intended to orient one in the current status of psychiatry. They form an eminent milestone in therapy and are perhaps far more outstanding in broad application than are the numerous references, for instance, to certain therapeutic attitudes.

A second field of tremendous importance to the creation of a wholesome psychiatric attitude comprises the legal aspects of mentally sick patients. The removal of legal handicaps has paved the way for many of the facilities that are enjoyed at the present time. A huge gap of unwarranted public aloofness has been closed by the adoption of a wise and sensible attitude on the part of legislators and all of this has helped the psychiatrist immeasurably in the investigation and treatment of mental disorders. From Pinel to White is a long chapter.

Pinel was striving to ameliorate the condition of the mentally sick, who were then classed as animals dangerous to society. He first devoted his attention to those who had been confined at the instigation of the public authorities. The latter threatened Pinel "as a moderate and as an aristocrat—names which at that time were almost synonymous with sentence of death." Nevertheless, Pinel appeared before the Town Council of Paris and pleaded his reform.

"Citizen," said Couthon to him, "I shall meet you tomorrow at Bicêtre, and woe betide you if you have deceived us, and if under

the names of 'fools' you have concealed the enemies of the people." They met the following day, and when Couthon attempted to interrogate some of the patients, he said to Pinel, "O citizen, art thou thyself a fool, that thou wouldst liberate such animals? Do with them what thou wilt, but I am much afraid that thou wilt become the victim of thy rashness." On that day Pinel removed the chains from a number of patients.

According to Briggs the patients continued to be regarded as animals until Esquirol encouraged the legislative fathers to take them from that category and to regard them as human beings. Since then a large number of psychiatrists have been instrumental in removing legal stigmata from archives on the mentally ill.

We are not advised that White was threatened with decapitation when he inquired "into the relations of psychiatry to the administration of the criminal law"—a topic made debatable by the efforts of his predecessors. White's book (*Insanity and the Criminal Law*) was received by the public with calm respect, which represents as much a reflection of advanced public sentiment as it does a reflection of advanced conceptions in the field of psychiatry.

It is a question of no particular significance whether the treatment of the patient himself was directly responsible for the improvement in the housing conditions of the mentally sick and in the development of adequate legislation. The several factors ran parallel courses. The issue that we are trying to put forth is that the several non-medical problems (such as architecture and law) have had direct and powerful influences on the improvement of psychiatric procedures. Without a knowledge of the former, it can hardly be expected that a proper evaluation of direct therapy of the individual can be made.

Many of these relatively extraneous matters have been responsible to no small extent for the steady rise in the teaching of psychiatry, in the hours devoted to formal training. It was only a few years ago that psychiatry was not formally in the curriculum of medical schools, whereas at the present time some schools devote as much as 125 hours of their time to the subject. Attention is called to the fact that the teaching of psychiatry is still in its infancy. Just how far its influences may be felt in terms of treatment of the individual case is a question for future evaluation.

Then, too, within recent years there has been a rapid expansion in the number of private practitioners, this is a result particularly of the advance in therapeutic measures. The latter have been demonstrated in the main in the direction of prophylaxis and treatment of incipient mental deviations. The offices of the private practitioner and the wards of general hospitals that have been set apart for the treatment of mental disorders have contributed a great share to the proper management of disorders of the mind.

It has been a prevailing feeling for several years that favorable results can be achieved among certain patients with a manic-depressive syndrome when treatment is undertaken in the incipient phases of the disorder. Perhaps one of the most significant deterrents to treatment of the early phases is the lack of adequate facilities. The course to be pursued in the individual case can be mapped out, but the means by which treatment measures can be put into practice are inadequately developed. However, progress is steady, though slow. Proper surroundings are urgently needed; the psychoses as a class cannot be as effectively treated when they are living at home as patients with a so-termed "transference" neuroses can. There are, to be sure, many exceptions to this rule. Nevertheless, more adequate hospital facilities are necessary. For years general hospitals have been accepting patients with mild mental disorders; which have not however been provided with the best psychiatric care. This statement is not made to cast reflection upon the psychiatric equipment of the average medical man, but rather to indicate the way to a closer affiliation between him and the psychiatrist. Everything points that way. Psychiatric hospitals are now being erected in medical centres and close contacts are being established with all departments of medicine. Each department is being educated to recognize the problems of associated fields. Specialization in medicine is proving a boon, so long as intimate relationships between the specialities are maintained.

The connotations of "moral" treatment of the mentally sick are of more than historical interest. The formulations of 1850 have sound value in fundamentals. It is not at all improbable that what has been termed inadequate mental therapy may be in large part a misnomer for inadequate facilities for carrying out the treatment. As the facilities have grown, refinements in technic have grown; methods of psychotherapy as they are practiced today seem to repre-

sent a distinct improvement over former methods. The progressive psychotherapist of today is an opportunist, who recognizes and accepts all the possible methods of therapy and the facilities attendant thereupon.

Treatment of incipient mental disorders in a general hospital is an inevitable tendency, that is already well under way. Many excellent contributions have appeared within recent years to demonstrate its efficacy. From London comes the report (1930) of the board of control of the lunacy administration that one of the most significant moves of the year was the passage of the mental treatment bill, which provides for the preventive treatment of incipient mental disorders in out-patient clinics for voluntary patients. The New York State Department of Mental Hygiene has had this provision for several years now. The clinics in London are to be connected with general hospitals. Moreover, by the London bill the term "asylum" is to be replaced by the term "mental hospital." These features are, of course, already in operation in several countries; they are mentioned here merely to indicate their importance in the progressive development of a wholesome psychiatric attitude.

An ever-increasing number of patients is being treated in the out-patient departments of general and special hospitals. One need only to refer, for example, to Channing's views on "Dispensary Treatment of Mental Diseases," expressed in 1901. He treated many benign psychotic conditions in what was then called the dispensary. He said, "While our department has been of use in taking hold of incipient cases and either preventing the development of the attack or getting the patient early to the hospital where he received prompt treatment, on the other hand, we have also been the means of keeping cases from going to the hospital." This attitude is representative of the attitude taken by almost all who have had extensive experience in the treatment of early cases in an out-patient department.

The trend towards prophylaxis goes further,—it enters the private practitioner's office. We can do no better than to quote one of the most influential psychotherapists of the day. His ideas are accepted by many.

. . . . I wish to say that it is my feeling that we have reached a stage in psychiatric diagnosis where one can speak of tendencies just as one does in physical diagnosis. And just as in physical states, given an average endow-

ment, good or bad health depends on the environment so it seems to be in mental health. To follow the analogy still further we venture to say that by recognizing an exaggerated emotional state in early life one can produce a sort of immunity for subsequent schizoid or syntonistic disturbances, almost in the same manner as in the case of physical conditions. I have a strong feeling of conviction that the patients mentioned (in the paper), if they had been left to themselves, they would have broken down mentally and emotionally at puberty I might add that, bearing in mind the etiological factors as formulated by Freud, one could predict a future nervous or mental breakdown with as reasonable a certainty as in the case of physiological indications. (Brill, A. A.—*Psychotic Children: Treatment and prophylaxis*).

Further quotations from other authorities could be cited to show that prophylaxis or the treatment of incipient mental disorders offers a better outlook than has heretofore been acknowledged. In speaking of incipient cases of mental disorders treated during the period of the World War, Eager expressed the opinion that "a large number of cases of early mental disease would be provided with a much needed opportunity of obtaining advice and treatment at a time when there were some prospects of it being of some value." Eager was referring to reception hospitals for mental cases before certification becomes necessary.

On the other hand, some of our most respected authorities (Kraepelin, Bleuler) are remarkably quiet on the question of prophylaxis in the manic-depressive group, not to mention their taciturnity as regards prophylaxis in other mental reaction-types.

The general tenor with respect to prophylaxis among the manic-depressive group has to do with psychotherapy. Of course, the maintenance of physical health is always referred to; but the fundamental attack is upon the mental and emotional factors in a more or less direct manner.

PSYCHOTHERAPY.

The form of psychotherapy that predominates in the literature is largely derived from the psychoanalytic school of Freud. Psychoanalysts as a rule have directed their major interests to the "transference neuroses," but some have made inroads also in the "narcissistic" group. Freud feels that the latter group is not as amenable to his method of approach as are those patients classed with the "transference" neuroses; presumably he refers to therapy during the psychosis proper, for he also says that he has witnessed a

favorable outcome among the manic-depressive patient whom he has treated in the lucid interval between attacks. Indeed, it is the general opinion of psychotherapists that psychotherapy is most efficiently applied in the interval between attacks.

It might be added, parenthetically, that it would be highly desirable to hold a nosological conference between psychiatrists and psychoanalysts, because, it appears, both speak of the same clinical situation under different names. For instance, what the psychiatrist often refers to as a manic-depressive syndrome is frequently no other than the anxiety-hysteria of the psychoanalyst. The same difference in diagnostic opinion may occur also concerning patients who exhibit a dominance of schizoidism. The psychiatrist converts too many schizoid characters into schizophrenia and, when relatively good transference is established, the same schizoid character is identified with one or another of the "transference" neuroses by the psychoanalyst. What belongs to the narcissistic and what to the transference groups needs further definition.

Walden is of the opinion that the earlier boundaries set for psychoanalysis in the realm of the transference neuroses are entering the field of the narcissistic neuroses, "and even into the territory of the psychoses." He emphasizes that in the first place the analysts must first free themselves from their narcissistic resistance; the difficulty at the moment is the resistance that the analyst sets up against regressing to the level of the narcissist, so that he can talk in like terms with his patient. It is possible that transference that is first of the narcissistic order may eventually be evolved into transference at a higher level. Indeed, that is what actually happens in the treatment of manic-depressive patients. It is usual, save in very far advanced clinical syndromes, to observe some of the patient's libido attached to objects outside of himself; that is, there is object-cathexis. Walden stresses the point that the object-cathexis ordinarily is strong enough to permit the analyst to establish some degree of favorable transference with the patient. As he puts it, "While we cannot exercise control over directly narcissistic fixations, there is some part of the personality, still healthy, which may be worked upon."

The psychoanalytic conception of melancholia is still an unsettled problem. The present working hypothesis deals with the consideration that melancholia is associated with a withdrawal of object-libido

from the loved or lost one and a subsequent transformation of the object-libido into ego-libido. The self-accusations really refer to the lost love-object. The ego takes the place of the object and the self-torture is understandable through a knowledge of the ambivalence of feelings. Hate and revenge gratify themselves on his own ego. Melancholia is really a regression of the libido into the ego. The change from depression into mania is still to be explained, although it is known that in mania there is a feeling of triumph in having overcome the loss of the object.

In referring to milder depressive states, Glover says that "the analytic investigation of such conditions has not yet reached the stage when hard and fast guiding rules can be laid down. Hence it is true to say that our therapeutic endeavors are at the same time scientific investigations and that our attitude is on the whole opportunistic." In the treatment of the psychoses it is the function of the analyst *to maintain the analytic situation* for prolonged intervals. Glover adds: "*Evidently the first requirement is simply to maintain the analytic situation on the narcissistic level, to allow patients ample scope for elaboration and reiteration of their ideas, which will be found to stick closely to stereotyped patterns and situations.*" For those interested in the psychoanalytic approach to narcissistic neuroses Glover's contribution will be of much service.

Psychoanalysts lay a great deal of stress on oral phantasies in depressions. Glover says that the phantasies "are evidenced in all directions." Rado speaks of "a regressively activated oral technique." The oral phase of libido-organization is said to be intimately associated with the anal-sadistic phase. Alexander believes that mania might be considered "as a further step on the way to the narcissism which is entered upon in melancholia." In mania the splitting within the ego-system itself disappears, the cannibalistic identification of the ego with the object is then completed within the ego-system and an even more complete narcissism is thus achieved.

From the more practical standpoint several contributions have appeared. Clark claims that "from a therapeutic standpoint I may say that in all my cases the relief of the depression has been astonishingly rapid as the analysis progressed. The transference occurs rapidly and is extraordinarily strong, so much more marked than in the ordinary psychoneuroses, and especially the compulsion neu-

roses. It must be added that the depression is not solely relieved, but the whole temperamental adjustment of the depressive individual's life is so much improved that many of the patient's relatives are as much gratified at the change for the better as the patients themselves." Clark feels that "the whole chain of symptoms are all but parts of the one great process of failure in the effort at compensatory sublimation of the libido." In another contribution Clark says that he has "been able to more or less completely analyze at least a dozen cases of the manic-depressive type and I have also followed their subsequent histories very carefully. In none have relapses occurred." Clark gives some excellent advice as to how to overcome some of the difficulties that are encountered in the analysis of depressive cases. He states that "a modified psychoanalytic approach to these psychoses is a safe and sound procedure and one worthy of earnest trial."

Dooley believes that

cases of the manic-depressive type of reaction may have the same complex of causes, the core of which is failure at successive points of psycho-sexual development, that is found to underly the *præcox* group and the hysterias. That a serious functional mental disorder must have such a background of failure to react in useful ways, that it is the result of a series of vicious conditioned reflexes, is a theory finding support in most of the psychoanalytic work of recent years. Given the fundamental conflicts, the atypical archaic manifestations are possible, as MacCurdy has shown.

Barkas has written on "Treatment of Psychotic Patients in Institutions in the Light of Psychoanalysis." He feels that "in psychotic attacks there is a letting-off of steam, an escape of libido from repressions. Following the acute attacks there is a tendency for the emotional forces to readjust themselves. When this has occurred, with spontaneous recovery, comes the opportunity of the analyst to step in and promote such a further readjustment of stresses that another accumulation does not take place." In another part of the same contribution he writes, "It has been said that the fundamental difficulty in the treatment of the psychoses lies in the difficulty of establishing a transference relationship; no one who has worked in a mental hospital can uphold this statement. Transference, both positive and negative, occurs violently towards the persons of the environment and is used intuitively by the staff of any asylum, and

patients of all types respond to some extent." Barkas believes that the patient should be allowed to regress

back to the ultimate goal of all regressive yearning, the ante-natal stage; and then to promote his reliving, in the institutional environment, all the successive phases of development which had previously left fixations and failures of adjustment. He forms substitute transference relationships to new substitute objects and gradually rebuilds his adjustments to the simplified reality of the institution with renewal of self-confidence in the ability of the real ego thus developed to meet the demands of the new ego-ideal, and ultimately to adjust these to the more complicated environment of the external world.

Brill reported excellent therapeutic results in a patient who had previously passed through six attacks of depression. With reference to this case, he expressed the opinion that many cases that were formerly classified with the manic-depressive group are now looked upon as psychoneurotic, particularly of the anxiety-hysteria type.

Some investigators have reported that there is insufficient homogeneity in the manic-depressive group, so that general statements cannot be made with accuracy. Campbell was able to formulate the mechanisms operative in four cases of manic excitement, but he questioned the applicability of the mechanisms to other patients exhibiting a manic phase.

It is true that in many cases a satisfactory analysis is not possible; during the attack the symptoms may prevent an analysis, while on their return to their normal equilibrium the patients may not be willing to co-operate to the necessary extent. From the point of view of prophylaxis, a thorough analysis of the case is very advisable.

Campbell goes on: "The insight gained from these typical cases enables one to deal more satisfactorily with many cases of acute excitement, where in a setting of overactivity, talkativeness and exhilaration there occur many peculiar reactions, and where there is a florid development of peculiar ideas, which evidently represent the distorted symbolic expression of repressed trends." Campbell states that one should attempt to reconstruct the entire situation out of which the attack grew. "The difficulty of adjustment which leads to the manic attack in these (four) cases is much less deeply seated than in dementia præcox and allied conditions." One must study the patient's entire development in order to be in a position to give the patient a clear picture of himself for purposes of preventing future attacks.

To any one who has studied a large number of manic-depressive patients it is obvious that, while there are certain fundamental diagnostic leads, there are also multiple differences that must be considered. Bond and Partridge feel that "the problems of endopsychic conflict and personality become a trifle urgent. We have to do something more than to describe the ordinary personality traits, in order to get the data to help in the re-education of the patient, or the removal of conspicuous obstacles. We have to see what the reaction is on the psychic side." Manic-depressive patients are not very accessible, they say. Neither are the personality traits or the mental reactions uniform from case to case. Bond and Partridge do not find any hopeful conceptions in the manic-depressive field.

From the reports in literature on the treatment of manic-depressive psychosis, it is clear that the bulk of evidence is favorable. It must be granted, however, that the material reported on is more in the nature of a guide,—it points the way to procedures that have been found helpful in the management of the clinical syndrome. A great field is open for the further application of psychotherapeutic principles; and it seems that with such further application there may come about a better selection of patients, who might be favorably influenced by a given method of therapy.

PHARMACOTHERAPY.

In probably no other reaction-type has sedation through pharmacotherapeutic agents been as extensively employed as in the manic-depressive group. During the last decade of the past century and the first decade of the present century a great variety of drugs was used; the peak of sedative procedures through drugs was reached in that twenty year period. Perhaps one of the reasons for their extensive application was the tendency to abolish mechanical forms of restraint. This had already been favored by the erection of single rooms in which a patient was isolated and was permitted complete mobility, vocal and otherwise. The padded cell is a remnant of that era. But, as "insane asylums" were gradually transformed into "mental hospitals," with progressively closer identification with the atmosphere of a general hospital, isolation in cells has been abandoned. When the need for rest is apparent patients are now kept in a single room that is more nearly akin to the furnished room at home; therein he is given a relatively safe sedative, either in

the form of a drug, or better still through some psychotherapeutic means.

The literature on medicinal sedatives is more voluminous than on any other single topic of therapy. Careful survey of the literature reveals a tremendous number of chemical preparations; the appended bibliography contains references to some of the representative drugs that have been employed in the past three or four decades. A large number have been discarded, and it appears that among those in use today there is no special choice. Indeed, it seems to be the prevailing opinion that sedation is far more effectively accomplished through hydrotherapeutic means; drugs being employed principally in cases of emergency to subdue states of excitement or to induce sleep.

When sedation is carried on over an extensive period it assumes the proportion of what has been referred to as "prolonged narcosis." Opium used to be given extensively in 3-6 grains twice a day for several weeks. Needless to say, this practice is no longer in vogue. Ether and chloroform were favorite remedies about the middle of the nineteenth century,—“and certainly complete and rapid recovery has occurred in several cases of recent active melancholia. But numerous observations have shown that frequently (although not invariably) a temporary remission of the melancholia and mania, sometimes a complete lucid interval, follows the awakening from the narcotic effects of chloroform; soon afterwards, however, the morbid symptoms return.” (Griesinger.)

Somnifen, sulfonal, sodium bromide, sodium isoamylethylbarbiturate, etc., have been reported as yielding favorable results. It is said by some that the principle of prolonged narcosis seems to be valuable, although the most effective means of achieving such a state is still to be found. It must be concluded that all these procedures are still in a highly experimental stage.

For general tonic purposes normal saline infusions have been employed. Undoubtedly this step has proved valuable, but its merits are not peculiar to patients with a mental disorder.

Others have reported favorable results in the use of large doses of strychnine up to the point of intoxication. This form of therapy was, of course, used in phases of depression. The literature contains references to a large variety of other stimulating agents, each of which seems to possess some merit in the general building up

of run down conditions witnessed in the manic and depressive phases.

Within late years metallic salts have been looked upon with some favor. English has reported that "the general welfare of the patients was much improved" under the administration of manganese chloride. He injected intravenously from 1-8 c. c. of a 1/400 solution twice a week for 10 weeks; sometimes a second course is given. The rationale for this form of therapy is reported by Wahlbaum in its operation on the bactericidal properties of the body. Metallic salts are said to exert a strong stimulating influence upon many of the body substances which may be mobilised against bacterial attack.

The production of leucocytosis is said to have some advantages. A 5 percent solution of nucleic acid, diluted with normal saline solution is administered subcutaneously every 2, 3, or 4 days, starting with 15 minims and increasing until the patient is getting 60 minims per dose. The results are meagre. Some say that the leucocytosis seems to have effect in states of excitement and deny its usefulness in depressive states.

One could go on *ad infinitum* with accounts in the literature on various pharmacotherapeutic agents. But the authors are not especially optimistic. The preservation of the general body health is urgent, to be sure; yet whatever high hopes are held must be borrowed from the manufacturers of the preparations. There is nothing specific; nor is there any outstanding agent from the non-specific standpoint.

ENDOCRINOTHERAPY.

Preparations from the endocrine glands have been used to some extent in the manic-depressive group of psychoses, although the reports in the literature are fewer than in the other biogenetic psychoses. The thyroid stands out as the gland that has been most extensively employed. As early as 1893 McPherson used thyroid extract in a case referred to by him as "myxedematous insanity." Babcock recites some very interesting clinical experiments and concludes that thyroid extracts in the manic-depressive group have a beneficial influence (1896). In 1896 also Hrdlicka wrote that not much was to be expected of thyroid treatment in the manic phase, but the alterative value of the treatment makes it valuable in melancholia. He preferred not to speak of any curative value.

Around 1899 Mabon and Babcock reviewed the results obtained in the treatment of 1032 cases of insanity, collected from the literature. They came to the conclusion that "the most gratifying results in thyroid treatment are to be obtained in cases of acute mania and melancholia with prolonged attacks, puerperal and climacteric insanities, stuporous states and primary dementia, particularly where these forms of mental alienation do not respond to the usual methods of treatment. . . . Physical improvement is the outcome in most cases whether mental improvement takes place or not." They also concluded that "the proportion of individuals who recover under thyroid treatment and then relapse is less than the proportion that relapse after recovery from other methods of treatment."

The enthusiasm that prevailed around 1900 has not been reflected in subsequent literature, save in isolated instances. In 1912 Eager wrote:

It will appear from the results obtained that cases more likely to be benefited by the treatment (thyroid feeding) are those of stupor or melancholia occurring in adolescents, where the condition is not of so long standing that nervous structures are likely to have been impaired to any great extent.

Phillips claimed (1919) to have observed some thyroid enlargement in one out of every eight patients admitted to the hospital at the time he made his observations. He referred to all types of psychoses.

My series of cases show that the nature of the psychosis is, in some degree, determined by the form of the functional disturbance of the thyroid gland; *e. g.*, hyperthyroidism is usually associated with states of excitement, agitation, etc. (*e. g.*, manic-depressive insanity) whereas hypothyroidism is more often associated with states of apathy and indifference (*e. g.*, dementia præcox). The treatment of the psychoses associated with goitre depends to some extent on the nature of the functional disturbance of the thyroid gland. If the signs point to hypothyroidism treatment by thyroid extract should be instituted. If hyperthyroidism is present the treatment should be directed to the removal of the mental element, which is now admitted to be of great importance in the aetiology of this condition. The only satisfactory method of accomplishing this is by the employment of psychotherapy.

Molony feels that

endocrine therapy fulfils a very important and useful rôle in the treatment of psychoses in carefully selected cases. Polyglandular dyscrasias are the rule in the endocrine psychoses and pluriglandular therapy should give the highest percentage of satisfactory results. No case of mental disorder, more

particularly if it supervenes at puberty or the menopause, however advanced or hopeless, should be considered incurable until disordered endocrine function has been definitely excluded, whether this be done by the absence of characteristic symptoms or by the failure of response to organotherapy.

Occasionally there are reports regarding the results of treatment by other substances—ovarian, testicular, suprarenal extract—but the experiments, in so far as manic-depressive psychosis is mentioned, need a wider application to insure recognition.

PHYSIOTHERAPY.

For a more extensive survey of this topic it is necessary to consult original sources of information. One can only indicate briefly here what trends of interest have been developed in the field of physiotherapy. Under this heading hydrotherapy has been included. The merits of the latter form of treatment are well established and under proper selection of patients and methods a great amount of good may be accomplished. It is not the purpose of the present writers to go into details with respect to the indications and contra-indications, but rather to adopt the same attitude of presentation that has prevailed with other subdivisions of therapy. The literature abounds in contributions of much value and some of the contributions are referred to in the bibliography.

The cool or cold bath (temperature, 50-75° F.) is valuable as a tonic; it is claimed (Lepine) that it stimulates metabolic processes to a remarkable degree. When the application is accompanied by mechanical movements (friction or percussion) its tonic efficiency is appreciably enhanced. "The prolonged cold full bath not accompanied by friction is one of the most depressing of all hydriatic procedures." The quotation is from Kellogg, from whose book a large share of the present comments are drawn. One should consult the original for a comprehensive survey.

The full details of the "neutral bath" (temperature, 92-97° F.) are given by Kellogg. Here it will only be said that this type of bath is followed by a decided lowering of the surface temperature, with normal retention of internal temperature. "In insomnia there is practically no single measure of treatment so valuable as the neutral bath." The sedative effect is striking.

The hot immersion bath (temperature 98-104° F.) "is a powerfully exciting measure." It is said to be especially useful as an eliminative or spoliative procedure.

Packs are extensively used. Ordinarily in psychiatric practice the general pack is employed. The cooling sheet pack is tonic in action, the neutral sheet pack is sedative, and the heating sheet pack is exciting.

There is a great number of other hydriatic procedures, each of which is said to have its indications and contraindications. Hydrotherapeutic measures are indispensable in the proper care of mental patients and text-books should be consulted for a thorough description of the procedures.

Then, too, there is much to be accomplished by the application of dry heat through the use of electric heating blankets, electric light baths, radiant heat applications, etc.

Exercise, active and passive, has been investigated at some length. Franz and Hamilton studied the effects in cases of depression. A mechanical vibrator was used for passive exercise and walking constituted active exercise. It was concluded (conservatively) that "the thresholds of pain and pressure appreciation are higher than normal in a case of retardation, that there is a daily improvement in the pressure and pain sensibility coincident with the lessening of the retardation and the depression." The authors stated among other things that mechanical vibration increases the rapidity of movement and lowers the pain and pressure thresholds. "After moderate exercise there is more improvement than after a similar resting period."

Roentgenologic radiation has been utilized in cases of manic-depressive psychoses. Bondarev radiated the ovarian region in two patients; Ratner carried out a similar procedure in seven manic-depressive patients, but applied the rays to the pituitary region.

Heliotherapy has its merits, but these are not distinctive to the psychoses; in general light therapy may be regarded as a useful adjunct to general physical improvement among psychiatric patients.

BACTERIOTHERAPY.

In the field of bacteriology the question of infectious agents has occupied an important rôle. Cotton has been largely responsible for a renewal of interest as regards the influence of infections among the psychoses. He says that "clinical evidence would support the fact that there is a definite relation between chronic infections and

the psychosis. . . . As a result of eliminating these infections in the last four years (1918-1922) the recovery rate has increased from 37 per cent (spontaneous recovery rate for a ten-year period prior to 1918) to an average of 85 per cent."

Kopeloff and Kirby carried on extensive and intensive investigations from the same angle and concluded that "in a series of 120 cases showing manic-depressive, dementia præcox, psychoneurotic and psychopathic personality reactions, the removal of focal infection in 58 cases did not result in a higher percentage of improvement or recoveries than in a comparable group of 62 cases in which foci of infection were not removed."

Several investigators have administered antisera (antistreptococcus, antistaphylococcus, antibacillus coli, etc.); the results are problematical. Some (Kopeloff, Julianelle and Ebaugh, and others) have implanted the bacillus acidophilus in the intestines of mental patients. The clinical results have been favorable from the standpoint of elimination of intestinal putrefaction. No claims are made for any direct action on the mental status. "Intestinal putrefaction is probably a concomitant of some forms of psychoses, if it is at all related. The administration of acidophilus milk is recommended in the treatment of psychoses as a means to physical betterment" (Julianelle and Ebaugh).

Phillips claimed that "the lactic acid bacillus has a decided beneficial effect on cases of true melancholia with disturbances of the alimentary canal: (a) by diminishing the amount of toxins absorbed from the intestinal tract: (b) by promoting a rapid and easy assimilation of food material." He added that "it certainly shortens the duration of illness and increases the chance of recovery. The percentage of recoveries is increased from 46 to 61 per cent." Moreover, Phillips suggested that early treatment of melancholic conditions with the lactic acid bacillus might considerably ameliorate the syndrome.

Back in 1893 MacPherson spoke favorably on the elimination of intestinal putrefaction through the use of large doses of naphthalin. The general physical state was improved; "the purely physical disorder of the brain was in no way affected by the treatment."

As regards autointoxication it is probably fair to point out that the following quotation, made in 1909, may still hold true. "It would seem that in the psychoses studied, the question of autointoxi-

cation or more properly autoinfection was one which should always be considered, at least as an influencing factor; although at the present time the analytical data are insufficient to ascribe definitely nervous or other disorders to an autointoxication." (Meyers, *et al.*)

PYROTHERAPY.

There are few published reports on the effect of pyrotherapeutic agents in the manic-depressive group. Bianchini and Nardi have recorded several patients of the manic-depressive form and also of schizophrenia as having attained complete recovery under the use of malaria. The technic was that ordinarily employed in cases of neurosyphilis. The authors made the claim that the therapeutic effects are due to action on the endocrine system. Others who have used febrile producing agents (milk, typhoid bacilli, nucleic acid, tuberculin, etc.) are not favorably impressed.

SEROTHERAPY.

References in literature on serotherapeutic measures do not hold out much promise. Klebelsberg injected ox serum in nine patients with a manic disorder. He reported that there was some improvement, but the results were not particularly striking. Others, using horse-serum, have not been much impressed. Seige felt that some measure of success was achieved in the relief of states of anxiety when the patient's own blood was injected.

SURGERY.

Surgical procedures among the manic-depressive group of psychoses are conceded to be useful adjuncts to the general welfare of the patients, but as a rule whatever glowing reports have appeared have not received much corroborative evidence. Among the procedures that belong to this category are blood-letting, trephining, various gynecological operations, the Steinach operation, spinal drainage, thyroidectomy, and miscellaneous operative procedures on other viscera. The prevailing opinion is that a diseased viscus in a manic-depressive patient should receive the same care and attention that it does in any individual quite apart from any other clinical situation that may be concurrent. Mental patients are as apt to feel more at ease when physical abnormalities are taken care

of as are those patients who do not possess a mental disorder in a formal sense.

PSYCHIATRIC NURSING AND SOCIAL SERVICE.

There are two fields intimately allied with psychiatry that often determine to a greater or lesser extent the results of treatment of manic-depressive patients. During the psychosis proper the management of patients by the *nursing profession* is of inestimable value. This attitude is not, of course, restricted to any special group of mental reaction-types. It is highly desirable that the nurse carry out not only the usual medical and surgical assignments, but that she be well trained in psychological medicine. An unusually large responsibility for the welfare of the patient while he is in the hospital, is delegated to the nurse. She should know the fundamental conflicts that the patient is trying to solve; she should know what the psychiatrist is trying to accomplish; furthermore, it is as necessary for her to guard against bias and against an unwholesome attitude, as it is for anyone who is concerned with the treatment of a patient. Indeed, her technic must be delicately carried out. There are several sound psychological reasons for this, chief among which is the consideration that the nurse is in daily contact with the patient and thereby establishes emotional associations of great importance. Her management of the emotional manifestations, as they pass from her to the patient and from the patient to her, must be taken care of with much circumspection. Very often the nurse serves as the principal personality through which the patient expresses himself and the proper management of the rapport frequently determines a major part of the subsequent course that the patient is to take. The psychiatrist should be aware of this possibility at all times.

After the patient has left the hospital it is often decidedly helpful to engage the services of a *psychiatric social worker*. The latter should become acquainted with the patient's reactions before he leaves the hospital. It is advisable to have conferences with the psychiatrist, the nurse and social worker, so that there may be a clearer and unified appreciation of the multiple factors involved. While a patient is in hospital he establishes likes and dislikes, he attaches himself to one or another person; certain attitudes are created. It should be the purpose of those responsible to see that the

change from the hospital to an outside environment is not abrupt and difficult. When the change is smooth, the social worker is in a position to take up her duties in a better manner than if she were to meet the patient for the first time in his home after he had left the hospital. The social worker is as much a part of the hospital as the nurse is, although her function relates more closely to the life of the patient outside of the hospital. The clinician should lay a good deal of stress upon the influence of the nurse and the social worker in the management of psychiatric disorders. Sometimes the one, sometimes the other may occupy a predominating rôle. The situations that may arise are multiple, variable and generally peculiar to the case in hand.

OCCUPATIONAL THERAPY.

The value of occupational therapy among mental patients is unquestionable. In 1913 the American Medico-Psychological Association went on record as follows:

Diversional occupation, scientifically and systematically applied, marks the standing of a hospital, and if neglected or omitted, the patients are not receiving the most modern care and treatment to which they are entitled.

Dunton, probably more than any other, has rendered excellent service in the preparation in book form of data relating to occupational therapy for patients with mental disorders. In a brief historical survey Dunton quotes Wyman (1822) as follows:

The amusements provided in the establishment for lunatics, as draughts, chess, backgammon, ninepins, swinging, sawing wood, gardening, reading, writing, music, etc., divert the attention from unpleasant subjects of thought and afford exercise both of body and mind and have a powerful effect in tranquillizing the mind, breaking up wrong associations of ideas and inducing correct habits of thinking as well as acting.

Reid states that "the treatment of the manic-depressive psychosis by ergotherapy is a problem which demands long experience, careful study and observation of individual cases." She believes that the most favorable time to treat patients is very early in the course of their illness; moreover patients in a hypomanic phase respond best. She believes that work is generally harmful during an oncoming depression.

Boltz says that, "as in psychopathology so also in occupational therapy, I would first of all like to consider the individual as a whole, as a human organism which is constantly able to store, transform, and discharge energy." Occupational therapy should be under the direct supervision of the physician, according to Boltz. He stresses the point that personality factors play an influential rôle; for example, the type of occupation differs in the case of a schizoid patient as contrasted with the syntone. He would map out the work according to the psychodynamic principles that are guiding the patient.

One of the most practical guides to this form of therapy is Dunton's, "Prescribing Occupational Therapy." In this book Dunton is careful and specific; for those who would know more definitely what to prescribe the book is invaluable.

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Notes and Comment.

THE TORONTO MEETING.—The eighty-seventh annual meeting of the Association in Toronto, June 1 to 5, was a notable and stimulating occasion. The attendance was unusually large and representative; the total registration of members and guests was 515. As extremes of distances, the States of Texas and California, and all the Western Provinces, including British Columbia, were represented.

The Committee on Arrangements provided an attractive and convenient setting at the Royal York, a splendid hotel, peculiarly suited to convention purposes. The Program Committee arranged an unusually interesting series of papers and discussions, and the quality of the contributions was of a high order. The grouping of papers into varied fields of psychiatric interests gave a cohesion to the presentations that was appreciated. Of especial merit and interest was the group of contributions, on the second morning of the session, dealing with the psychotherapy of schizophrenia.

The address of Dr. English, the President of the Association, directed attention to the increasing magnitude of the problems of the mentally defective which are now confronting our governments in providing for their treatment and care, and emphasized the need of greater concern with practical efforts at prevention.

The recent change in the practice of the Association in having the reports of standing committees made to the council rather than at the general sessions has made possible a more thorough consideration of these reports, and has made more time available for the regular program.

The reports of the standing committees showed that there is a continuing interest and active effort throughout the year in varied fields of psychiatry and hospital administration, that is doing much to maintain high standards, and is broadening the influence of the Association in the fields of medicine and social welfare.

The round-table dinners which have been a feature of the meetings for a number of years were largely attended. These make

possible a consideration of special topics, in informal discussions, not practicable in the general sessions, and an interchange of experiences and points of view that are helpful and stimulating.

For the social side of the meeting, the Committee on Arrangements and the hospitable citizens of Toronto provided for the members of the Association and their guests a variety of entertainment, which gave relaxation and pleasure in the periods between sessions.

Dr. William L. Russell of New York was elected President for the ensuing year and Dr. James V. May of Boston Vice-President. The able Secretary-Treasurer of the Association, Dr. Clarence O. Cheney, was reelected to the position he has held so efficiently for the past few years. From August 1, his address will be the New York State Psychiatric Institute and Hospital, 722 West 168th St., New York City.

Philadelphia was chosen as the place of meeting for next year.

The proceedings of the Toronto meeting will be published in full in a later issue of the JOURNAL.

THE DINNER HONORING DR. E. N. BRUSH.—This year's meeting of the Association was made notable by the occasion of the dinner on the evening of June 4, arranged in honor of Dr. Brush by his friends, in recognition of his retirement from the Editorship of the AMERICAN JOURNAL OF PSYCHIATRY.

From time to time in the long history of the Association there have been a few men who have been outstanding in the affairs of the Association, and who have endeared themselves in personal relations to its members. Such a man is Dr. Brush. By his wise counsel and charm of personality he has had an enduring influence on the progress of psychiatry in America; and in his long connection with the JOURNAL of the Association he has exerted an influence hardly to be calculated. How well he has done his work, the excellent quality of the JOURNAL will bear permanent record.

The President of the Association, Dr. English, presided at the dinner, and the friendly international relations of the members were expressed in the cordial formalities and setting of the occasion. As an enduring record, the President of the Association on behalf of its members, in felicitous remarks, presented to Dr. Brush an illuminated vellum scroll which is reproduced herewith. The

American Psychiatric Association

Dr. Edward Nathaniel Brush

Life Member and former President of the American Psychiatric Association, Distinguished Physician, Administrator, Editor, Humanitarian.

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from the Officers and Members and from his colleagues on the Editorial Staff on the occasion of his retirement as Editor of the American Journal of Psychiatry commemorating forty years service on the Editorial Board, twenty-six years as Editor-in-Chief.

In appreciation of this unique service of untiring devotion and scholarship extending over so many years, and to express the high esteem and deep affection of his colleagues and friends, this scroll is presented at the eighty-seventh annual meeting of the
AMERICAN PSYCHIATRIC ASSOCIATION,
held in Toronto, Canada, June 1 to 5, 1931.

W. M. English, President

William C. Russell, Vice President

Charles O. Leroy, Secretary-Treasurer

Secretary-Treasurer

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photograph from which the engraving was taken was made before the associate editors and collaborators had affixed their signatures.

It was felt that this scroll, to signalize fittingly an occasion of such moment, must fulfil three conditions: it must justly express the sentiment of the officers and members of the Association; it must have historic meaning; it must in itself be a worthy and beautiful thing. The reproduction, it is hoped, will offer evidence on these points. In the scroll-work at the top is a glimpse of the stately façade of the Utica State Hospital where, in 1878, Dr. Brush began his psychiatric career and where the *AMERICAN JOURNAL OF INSANITY*, now the *AMERICAN JOURNAL OF PSYCHIATRY*, was born; at the bottom appears one of the buildings of the Shepard and Enoch Pratt Hospital, organized and long directed by Dr. Brush, where his latest institutional work was done, and where for so many years the *JOURNAL* was edited. The two scenes thus incorporated in the scroll have therefore epochal significance, not only in the biography of the retiring Editor but in *Journal* and Association history as well.

The friends of Dr. Brush wished also to give to him a more material expression of their regard, and as a token of this they presented to him a testimonial fund which was to be personal, and to be used as he might desire.

Besides the President and Dr. Barrett, who presented the fund, several others prominent in the affairs of the Association spoke at the dinner, and letters were read from numerous members who were unable to be present. The tenor of all the messages, spoken and written, was the same—appreciation of the work done by the retiring Chief; personal esteem and affection.

The friends of Dr. Brush cannot regard this occasion as in any way implying that he is retiring from activity in the Association, nor that it means any interruption of the delightful associations with him, that they have been privileged to enjoy for many years. It is their hope that the leisure which may now come as he lays aside the responsibilities he has so long carried, may be enjoyed in health and happiness.

THE EDITOR EMERITUS VOUCHES FOR HIS SUCCESSOR.—It seems proper that the Editor who in the last issue of this *JOURNAL* wrote his Valedictory should in this issue, the opening of a new volume

and the beginning of a new career, say something in the way of an introduction for his successor.

The primary difficulty which confronts one who attempts such a task is evident. The JOURNAL in which his remarks are to be published, is edited by the one about whom he is to say something. There are many things in the present instance which the writer would gladly say about Dr. Farrar; but long acquaintance with the Editor-elect has taught him that Dr. Farrar is a modest man; that though he has no inferiority complex he has on the other hand a woful lack of comprehension of his peculiar fitness for the position to which he has been called. It would therefore be, we are certain, distinctly embarrassing to Dr. Farrar to have to print in that portion of the JOURNAL devoted to editorial remarks what we would like to say.

Let us therefore by force of circumstances be content with saying to the readers of the JOURNAL that in education, medical training and experience Dr. Farrar has laid a foundation upon which we predict will be built an editorial career which will enhance the reputation of the JOURNAL and of which his friends will have occasion to speak with gratification and pride.

In turning over to Dr. Farrar the editorial conduct of the JOURNAL we do so with the most complete confidence in his ability to carry on the work and in the confident expectation of a progressive improvement in the character of the periodical.

We urge for Dr. Farrar the same generous support accorded in the past to the undersigned.

EDWARD N. BRUSH.

"ALIA INITIA."—Good taste might suggest that a new occupant of the chair which has been graced by Blumer, and Dewey, and Hurd, and Brush, should sit down to his work in silence. Usage however, warrants, if it does not demand, a few introductory words. Moreover it is fitting that an incoming officer should express his gratitude for the confidence of his colleagues. This I most heartily do.

With the May issue of the JOURNAL Dr. Brush completed forty-one years of editorial service, during twenty-seven of which he carried the responsibilities of Editor-in-Chief, being the seventh of a distinguished line. In his valedictory, appearing in the May

number, he did a gracious and charming thing; he exchanged the official editorial chair for the arm-chair of the family circle and chatted intimately with his readers. From his rich knowledge, so much of which is personal recollection, he outlined and humanized the history of the JOURNAL, which reflects in such large measure the history of the Association itself.

With the present first number of the eighty-eighth volume the Chief steps up to the rank of Editor Emeritus. But this does not mean that his services will cease; and we are unwilling to regard his valedictory as farewell. Indeed, had it not been for his generous promise of continuing active support the present editor would have felt much greater reluctance in taking over the duties of his office.

And there are other things for which we may confidently hope. The editorial retrospect already referred to contains hints of unwritten chapters in the history of American psychiatry which no one else is so well qualified as Dr. Brush to write; some of which indeed no one else can write. To such congenial tasks doubtless his thoughts have sometimes turned; and the necessary leisure which we hope will come with the change in official status he has abundantly earned. We look forward therefore not only to the continuance of his guiding influence in the affairs of the JOURNAL, but to his active contribution to its pages.

And now may it be permitted to me, following the example of the Editor Emeritus, to say a personal word. I should like to mention two main reasons for so serious a decision as to receive from his hand the editorial pen. The first of these reasons was Dr. Brush himself. It was under his guidance that my own training in psychiatry began; he sponsored my earliest efforts at preparing papers for publication, and provided for their appearance in this JOURNAL. His encouragement, his patience with my inexperience, and the long years of his friendship since, have been among my dearest possessions. That he should be content to leave in my hands the work to which with such eminent scholarship he had given his best energies for so many years, was an argument difficult for me to dispose of; although there was satisfaction in confronting him for once with doubt as to the soundness of judgment in his recommendation to Council.

These personal motives bear witness to the validity of contemporary teaching that it is for the most part the affective elements of consciousness which decide issues in our daily affairs.

Of like kind was the second reason. The American Psychiatric Association is an international body; its JOURNAL is an international publication, the medium of expression of English- and French-speaking psychiatrists of the United States and Canada. And while the Canadian members are naturally far outnumbered, it is significant of the increasing activity in the northern field that at the 1931 meeting in Toronto sixteen of the sixty-five names proposed for membership (twenty-five per cent) were from the Provinces of the Dominion. To bring the editorial office of the JOURNAL for a period to this side of the line is to us welcome evidence of the recognition of its genuinely international character.

And here again emerges a personal motive. It refers to another great personality with whom it was my privilege to be associated,—Charles K. Clarke, dean of Canadian psychiatry, and for 20 years, until his death in 1924, a member of the Editorial Board of the AMERICAN JOURNAL OF PSYCHIATRY. As Dr. Brush had been my earliest professional friend and mentor in the States, so was Dr. Clarke in Canada; and to perpetuate in however small degree his influence, his spirit of tolerance, his humanity which was as deep as the depths of life, is a privilege eagerly to be grasped.

Such were the influences at work. But if it is true that man cannot live by bread alone, it is equally true that bread is indispensable; that serious undertakings cannot depend upon sentiment solely but involve practical issues. Work such as this is not and should not be single, but rather a combined effort; and it is to me the greatest satisfaction and assurance to be associated with the distinguished colleagues whose names appear on the Editorial Board, and who have so generously pledged their collaboration and support. Behind the Editorial Board stands the membership of the Association, upon whose continued cooperation we confidently count, and whose interests we shall endeavor to serve. We hope that our work together may deserve the approval of the Editors Emeriti whom we all hold in such high honor and esteem.

CLARENCE B. FARRAR.

ARCHIVES SUISSES DE NEUROLOGIE ET DE PSYCHIATRIE.—The Editors of the Archives Suisses de Neurologie et de Psychiatrie have announced the plans which have been adopted for the continuation of this important publication, whose founder Professor C.

von Monakow died October 19, 1930. It is proposed to continue the "Archives" in their familiar form, as a scientific review and as the official organ of the Swiss Society of Neurology and the Swiss Society of Psychiatry.

Replacing the Editor-in-Chief, an Editorial Committee of four members has been appointed as follows; for the neurological section, Professors R. Bing and M. Minkowski; for the psychiatric section, Professor Hans W. Maier and Dr. H. Steck. With these are associated, in the neurological section, Dr. Brun, Professors F. L. Naville and Veraguth; in the psychiatric section, Dr. O. L. Forel, Dr. L. Binswanger, Dr. M. Tramer.

It is a satisfaction to neurologists and psychiatrists the world over, that the "Archives Suisses" will be continued under such able direction.

Association and Hospital Notes and News.

OBSERVATION CLINIC AT THE DELAWARE STATE HOSPITAL.—A forward step was taken by the State of Delaware with the opening of the Psychiatric Observation Clinic in February of this year.

This clinic, which has accommodation for twenty male and twenty female patients, is operated in conjunction with the State Hospital at Farnhurst, under the superintendency of Dr. Tarumianz; and to it are admitted all mental cases for a period of observation before the procedure of commitment is carried out. Admission of a patient takes place upon application in the prescribed form by any licensed physician in the state. An observation period not to exceed four weeks is provided; at the end of this period, there are three possibilities: (1) Discharge outright if further hospital care is not required; (2) a four weeks' extension of the observation period; (3) commitment to the state hospital for cases found to be definitely psychotic and requiring prolonged institutional care.

The clinic has power to detain patients without their consent, for the four weeks or such extension as may be necessary. The fact that these patients have not been regularly committed, might throw doubt on the constitutionality of enforced detention. A similar situation exists however in other psychiatric clinics and hospitals; and in actual practice appears to have given rise to little or no difficulty. This circumstance is evidence that hitherto the practice of psychiatry has been beset with too much legislation, and that the majority of mental cases can be cared for properly with a minimum of legal conditions.

AN HONOR TO DR. HARRY W. MITCHELL.—At the one hundred and twenty-seventh annual commencement of the University of Vermont June 15, 1931, the degree of Doctor of Science, *honoris causa*, was conferred upon Dr. Harry W. Mitchell, Medical Superintendent of the Warren State Hospital, Warren, Pa., and an honored member of The American Psychiatric Association.

Dr. Mitchell, who was born in Plymouth, N. H., obtained his preliminary education at the Peacham, Vt., Academy and his medical degree in 1896 at the Medical Department of the University which has just honored him.

Since 1896 he has had an active and notable medical career. As Assistant Physician at the State Farm, Bridgewater, Mass., at the Danvers State Hospital, Mass., Superintendent of the Eastern Maine State Hospital, 1907-10 and of the Danvers State Hospital, 1910-12, he established a reputation which, when an emergency requiring an administrator of vigor, and at the same time a physician of scientific vision arose at the Warren, Pa., State Hospital, he was called to the position in 1912, which he has held with credit to himself and the State ever since.

Dr. Mitchell joined The American Psychiatric Association (then The American Medico-Psychological Association) in 1899. From 1918 to 1921 he served the Association as Secretary, was elected Vice-President in 1921 and President in 1922, presiding at the seventy-ninth annual meeting in Detroit in 1923.

We congratulate Dr. Mitchell upon this new honor. He will bear it modestly we know, that it is well deserved we are assured.

E. N. B.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION HONORS AMERICAN PSYCHIATRISTS.—At the ninetieth annual meeting of The Royal Medico-Psychological Association held in Dublin July 8, 9, 10, 11, 1931, Dr. Arthur H. Ruggles of Butler Hospital, Providence, R. I., and Dr. Clarence M. Hincks, the recently elected Director of the National Committee for Mental Hygiene, were elected corresponding members of that Association.

Several American psychiatrists and neurologists have been recently honored by The Royal Medico-Psychological Association.

Professor Harvey Cushing of the Harvard Medical School, whose contributions to brain surgery are well known was elected an honorary member last year. Dr. Adolf Meyer has been an honorary member since 1926.

In 1930 Dr. Charles Macfie Campbell of Boston, Dr. Edward Strecker of Philadelphia and Dr. Frankwood E. Williams of New York, were made corresponding members and in the previous year

Dr. Franklin G. Ebaugh, Dr. George K. Pratt and Dr. Douglas A. Thom were accorded like honor.

Dr. Campbell is an Associate Editor of this JOURNAL as is also Dr. George H. Kirby who has been a corresponding member since 1928; and Drs. Strecker and Ebaugh are Collaborators on the Editorial Staff.

E. N. B.

Book Reviews.

Inversions—Atmung und Geisteskrankheit. By OTTO BUSINGER, M.D.
(München: Verlag Ernst Reinhardt, 1930.)

In this brief monograph, the author assembles a body of very interesting material bearing upon the relation of breathing disturbances to deviation and pathology in the psychic field. Fundamentally, according to Businger, normal or physiologically fully effective respiration depends upon the reception and handling of the air column intact and not split or dispersed. When this formula is interfered with, either on a functional basis or because of organic defect, corresponding reflective effects may be detected in mental and emotional response. In support of this relationship of breathing to mental and affective state, are cited the commonly noted dullness, difficulty in thinking, languor and apathy and irritability characterizing the ordinary "cold." Also Hagemann's work is mentioned demonstrating an apparently close connection between rhinopathology of various types and psychologic disorder, more particularly depression. Likewise there appears ample indication in the literature of a significantly high incidence of nasal pathology among psychoneurotics, psychopaths, problem children and criminals, with in certain situations evidence of improvement in psychiatric status on correction of the nasal abnormality. Of interest too, in the connection, is Kafemann's report to the effect that experimentally produced impediment in nasal breathing is followed by definite disturbance of psychic function, chiefly difficulty and lessened speed in thinking. Worthy of especial comment are the author's own observations carried out upon a series of about four hundred schizophrenics. Numerous nasal deviations were found in this group, thus among others narrowness of the upper nasal passages, thickening of the middle turbinates, septal spurs and unevenness of the mucous surfaces, with areas of atrophy and swelling and tendency to dryness and crust formation. In many cases, as might be anticipated from the foregoing, frank disruption of the normal breathing formula was observed, leading to a feeling on the author's part that in this type of disorder a distinct respiratory insufficiency may be postulated. This hypothesis concords well with findings of others relative to decrease in metabolic rate and deficiency in the oxygenation process as a whole. As dependent upon this departure from normal respiratory function, a number of special psychotic (schizophrenic) manifestations are discussed, among them disturbances of affect, abulia, speech abnormalities including mutism, catalepsy and catatonic rigidity, various stereotypies and thought interference.

Viewed broadly this contribution of Businger's seems a very stimulating one. While of course the respiratory factor *per se* is hardly to be deemed of primary causal valence with reference to actual mental disorder and psychosis, nevertheless the question as developed is certainly an interesting one and, to say the least, deserving of further thought and investigation.

THEOPHILE RAPHAEL.

Praktische Differentialdiagnostik für Ärzte und Studierende. Band III. Differentialdiagnostik in der Psychiatrie. By HERMANN HAYMANN, M.D. (Dresden and Leipzig: Verlag Theodor Steinkopff, 1930.)

In this volume of 250 pages the author presents us with a very compact, clear, practical and thorough differential diagnosis in psychiatry. In addition to a comprehensive general introductory discussion there are included three major sections. The first is devoted to symptomatology as a whole and the second to the clinical syndromes, differentially considered, presented by the individual pathologic states as such. The final section, contributed by Dr. Erich Stern, deals with problems of intelligence testing and psychometric procedure. While in the main quite up to date, more attention might well have been accorded the rôle of dynamic factors, more especially those brought into the field through the psychoanalytic contribution. Also, in common with all works of similar character, this one falls short of the ideal text in not affording the reader a truly well rounded "total" discussion of the subject matter in its entirety, including here particularly such matters as constitutional relations, vital underlying mechanisms, social implications and therapy. However, within the limits of its intention, simply a treatise on differential diagnosis, it should prove really helpful to the student and practitioner.

THEOPHILE RAPHAEL.

Introduction Biologique à l'Étude de la Neurologie et de la Psychopathologie Intégration et Désintégration de la Fonction. By C. v. MONAKOW et R. MOURGUE. (Paris: Librairie Félix Alcan, 1928.)

This last book of von Monakow written in collaboration with Mourgue is the swan song of the great neuro-anatomist. It is the result of long years of study of the anatomy and function of the central nervous system modified by a philosophical change in thinking in the last 10 years of his life and influenced by his co-worker, an outstanding pupil of Bergson.

Monakow has always criticized the conception of a representation in the cortex of a system of pigeon holes where apperception and representation are stored up and attempted to substitute for this theory the conception of the "chronogen" localization. He believes that every individual function has a long developmental history and that at various periods new impressions are added in definite parts of the central nervous system, hence the term "chronogen." No matter how simple a function may be at a given time, it has had according to Monakow a long historical past covering not only the life span of the individual but also dating back far into his ascendancy. Monakow and his co-worker discuss in their book the conception of the developmental history of an individual and of his functions as the biological starting point for the study of neurology and psychiatry. They criticize the every day psychological terminology considering it obsolete, inaccurate and useless for the requirements of the genetic and dynamic character of the biological entity. According to Monakow language is a result of a long development and is not always suitable for the interpretation of the history

of functions as in the words of Bergson "*on ne saurait faire de l'évolution avec de l'évolué.*" It is for this reason that they were forced to use neologisms.

The starting point of this new system is partially identical with the Neovitalismus and more so with the doctrine of Entelechy of Driesch. Each living cell possesses an unknown so-to-speak metaphysical quality—the "*Horme*" (impulse to movement)—which only becomes clear if one accepts it as the basis of the vital activity in a free living cell or of a completely developed individual—a sort of propulsive energy which is submitted to the laws of time and is to be considered as the ancestor of the instinct.

The "*Horme*," stimulated by the protoplasmatic interoceptive and exteroceptive irritations, can express itself in two ways as "*Klisis*" or adaptation and "*Ekkklisis*" or repulsion. The "*Horme*" of the unicellular organism in which one finds already the adaptation and repulsion movements, attaches itself to the nervous system as soon as the latter is developed. The principle of maximum work accomplishment goes further in the sense that the later acquired functions are shifted to the frontal end of the nervous system. In this manner the *Horme* becomes the ancestor of the instincts and the movement of the *klisis* and of the *ekklisis* are directed by the interoceptive and exteroceptive stimuli. Each stimulus produces a tendency to tension or "*sentiment*" of the authors. This, according to them, is the first sign of what later will become the "*feeling*." The exteroceptive stimuli produce, in addition to the *klisis* and *ekklisis*, some other reflexes in a purely mechanical manner which are at first synchronous, but soon begin to express themselves as successive phenomena. In human locomotion the instinctive and exteroceptive movements act together in the formation of a function in which the chronogen localization becomes definitely manifest. The spinal cord offers for this purpose in a certain phase of development the successive alternating movements for the lower extremities; the vestibular apparatus, the mid-brain and the cerebellum offer in another phase the postural tonus and finally the central gyri adapt the tonus to the particular condition of the ground over which locomotion is being accomplished. The nuclei of the posterior columns and of the thalamus direct at another phase the rhythmic impulses to the various cortical fields. The various fragments of the successive and synchronous movements are united into a "*kinetic melody*," which is not localized in a circumscribed region but is the expression of the activity of the whole nervous system.

The instinctive *klitic* and *ekklitic* expressions and feelings acquire a further integration in the sense that they are dependent upon the existence of the endocrine-vegetative system. In addition there is a system for the *gnosy* and *praxy*, though not entirely independent from the instinctive expression remains, however, relatively free. The instinctive system reaches a certain independency and the formation of the system passes through two lines: 1, Integration with building up of the instinctive and gnostic functions; 2, Disintegration with breaking down through pathological processes. Integration of the functions is formed partially through the instinctive expressions and partially through the processes which are in turn formed from the spheres of orientation and causality.

The elementary feelings which belong to the sphere of the instincts such as pain, happiness and fear are first related to the body. Soon, however, they become associated in the moulding of the personality. A continuous chain of such feelings runs through early infancy until a high conscious level is reached. In this respect the question of its origin in the individual imposes itself and for this reason the connection with the sphere of causality is introduced. The five instincts of man are further discussed; 1, the formative instinct, 2, the instinct of self-preservation, 3, the sexual instinct, 4, the social and 5, the religious. The formative instinct reacts only in an interoceptive manner. It serves the growth of the organs. At first there is the development of the endocrine and of the vegetative systems followed by the spinal cord, and the medulla while the anterior parts of the brain are still in foetal state. After birth development of this instinct goes further. There is a periodic myelinization at each period at which there is a new functional accomplishment by the individual. Immediately after birth oxygen necessity releases in an interoceptive manner the first respiratory movements and thus lays the foundation for the instinct of self-preservation. The nipple of the mother causes sucking movements thus furthering the formative instinct. Soon, however, the exteroceptive stimuli begin to play. At first there is orientation for the nipple but soon the reflexes of the sensory stimuli are added leading to conflicts with the consequent complication of activities.

It will be perhaps of more interest to the psychiatrist to consider Monakow's conception of psycho-neuroses which he discusses at length in the second part of the book. The authors make at first a historical review of the problem beginning with Hippokrates going down to Sydenham and Briquet, passing to the conceptions of Oppenheim, Charcot, Janet, Babinski, and finally coming down to Kretschmer, Adler and Freud. Monakow criticizes the doctrine of psychoanalysis, emphasizing the lack of clearness and the inefficient biological foundation of its basic concepts in particular those of the libido and repression. He is very much against the overevaluation of the sex element in the pathogenesis of psychoneuroses. He sees the main fault with Freud's doctrines in the fact that in the work of Freud the history of functions is put on an objective basis to the complete exclusion of the values of each stage in development which is the main theme in the long discussion taken up in the first part of the book. The authors feel that several factors have to be considered in the genesis of psychoses, such as hereditary predisposition which probably is to be regarded as a congenital insufficiency of the endocrine-vegetative apparatus and of the protective function of the neuro-ectodermal or hemato-encephalic barrier. In addition there is the accumulation of insults to instinctive life of early childhood comprising not only sexual trauma but also assaults on personal wellbeing and on the conceptions of honor and moral strivings. The influences express themselves in the psychic sphere and also in the cerebro-spinal system in the form of the well known negative and positive reactions, such as contractures, hysterical paralyses and anesthesias. The authors conceive the positive manifestations as a particular form of compensation with tendency to motor and affective discharges. In

the hysterical condition for instance separate elements of the "kinetic melody" are not entirely excluded but simply not utilized and compensation occurs in an entirely different region, in the sphere of the world of instincts. This process of deviation of nervous energy is to be differentiated from the process of diaschisis and is called by Monakow "diaspasis." This process does not occur in definite anatomical regions but in instinctive and symbolically combined entities such as in an arm or leg.

In a short review it is hardly possible to discuss this voluminous and exceedingly difficult book in detail. A clear, concise conception of this work is difficult to attain with only a brief contact but it seems to represent a very profound and earnest effort toward the bridging of the barriers which now seem to separate the fields of neurology, psychiatry, biology and philosophy. An English translation will be highly desirable and will be of great interest to American neuropsychiatrists.

JOHN NOTKIN,
Manhattan State Hospital, New York

Paralysie Générale et Malariathérapie. By R. LEROY and G. MÉDAKOVITCH.
(Paris: G. Doin & Cie., 1931.)

Herein, in succinct, readable and well organized form, the authors afford us a really fine résumé of the history and present status of malarial therapy in dementia paralytica. Their presentation is especially worthwhile in that the discussion is not limited simply to work done in France but is truly a world survey, covering very fully yet concisely and systematically, all findings and conclusions of any significance wherever their source. If for no other reason than this, representing as it does such a thorough digest and evaluation of this important matter in both its theoretic and clinical relations, the book is highly commended to all interested for careful perusal. In this connection, and quite aside from general form and content, the authors are to be congratulated on their excellent and helpful treatment of certain, so to speak mechanical, aspects of the work, notably the table of contents, bibliography and index. As particularly informative might be mentioned the chapters on history, remissions, indications and contraindications, associated specific treatment, technic, researches and clinical results, serology, histopathology, prophylaxis and socio-legal implications.

Readers here perhaps might find of interest some account of the authors' own experience with malarial therapy. This work has been carried on by them for two years at Sainte-Anne, essentially in accordance with the procedure of Wagner-Jauregg. The chills allowed ranged from six to sixteen depending upon the case, with chemotherapy following. This latter, varying somewhat as to detail in the individual situation, included potassium iodide, biniodide of mercury, cyanide of mercury, salicylate of mercury, novarsenobenzol and sulfarsenol.

Of the 102 cases reported, complete remissions (full occupational restitution) occurred in 36, incomplete remissions (residual defect but not interfering with resumption of home life) in 12 and some improvement in 15,

with 9 unchanged, 6 transferred to other institutions and 22 dead. The relatively high death rate is at least partly explainable through the fact that the cases were unselected and on the whole of definitely advanced type. This fact, too, serves to render the actual amount of improvement secured all the more significant. Relative to neurological defects, noteworthy betterment was also observed but of rather lesser degree than in the psychic field. Respecting the same, pupillary myosis and the Argyll-Robertson phenomenon proved especially persistent. As regards serology, while in some cases the blood and spinal fluid became entirely negative this was by no means the rule, with in many instances restoration incomplete if at all manifest. In a general way it appears that where amelioration does take place it affects first pleocytosis, then the Bordet-Wassermann reaction and finally globulin content. Also of interest, is the conclusion that there seems to be no necessary parallelism between clinical condition and serologic status, as in certain cases in good remission from a clinical standpoint, the serology was strongly positive and *vice versa*.

THEOPHILE RAPHAEL.

The Neuroses. By ISRAEL S. WECHSLER, M. D., Associate Professor of Clinical Neurology, Columbia University; etc., etc. (Philadelphia and London: W. B. Saunders Co., 1929.)

The author of this work is already known to the profession as the author of a Text Book of Clinical Neurology, which has been favorably received.

The present work is the result of an expansion of a brief chapter on the neuroses in the Text Book, which provoked such favorable comment from the author's colleagues as well as a letter of appreciation from Professor Freud, that the author decided to make it the basis of a separate volume.

The author states that, despite training in the field of neurology, with its emphasis on the organic or somatic point of view, he has adopted the psychologic approach to his subject. He has come to the belief accepted by many that "psychopathology offers at this time the best understanding of the neuroses." He states that he has "not failed however to discuss the physiologic, neurologic, endocrinologic and socialbiologic views of the etiology of the neuroses."

Chapter I, the Introduction, deals with the History of Psychiatry.

This chapter affords interesting reading and despite several errors presents in a condensed form the conceptions of, and the methods of treatment accorded to the psychoses.

On page 28 Dr. Wechsler says that "in 1547 a monastery was converted into an insane asylum and St. Mary of Bethlehem (Bedlam) came into being." In this misstatement he does not stand alone, the author of a recent history of medicine makes the same error.

Bethlehem was founded in 1247 as a Priory of the order of the Star of Bethlehem. One Simon FitzMary gave by deed all that he "had or might have" in the "parish of St. Botolph without Bishopsgate, London," "in houses, gardens, orchards, fish-ponds, ditches, marshes and all other things

pertaining thereto, as defined by their boundaries . . . for the foundation of a priory there and for the institution there of a prior canons and brothers and of sisters as well." When Bethlehem became an asylum for the insane is not definitely known, but long before 1547.

In 1632 an examination of the records was ordered and those who made the search reported "when the hospital (Bethlehem) was first employed to the use of distracted persons appeareth not. The first mention we find of it to be employed so was in the beginning of the reign of Richard II" about 1377. However, Edward III upon the assumption that Bethlehem was an alien priory owing allegiance to the Mother House in France seized the priory. The Kings of England thereafter exercised the right to appoint a master or governor of the house.

This right was exercised by Henry VIII who in 1529 appointed George Boleyn, Viscount Rochford, governor, a position which he occupied until in 1536, he and his sister Anne were beheaded. Henry VIII did not seize Bethlehem, that was done by Edward III; he did however in 1547 give it a charter. This charter was renewed in an amended form by Charles I in 1638. In this charter the King's rights as regards the control of the hospital were reasserted.

Since Henry VIII the hospital has been The Bethlehem Royal Hospital.

We have possibly dwelt too long upon this matter, but the reviewer has so often seen the statement that Bethlehem became a hospital for the insane in 1547 that he has felt disposed to correct the error.

On page 30 the author says: "In 1794 William Tuke built a Quaker retreat for the insane at York and reformed Bedlam, in a measure anticipating the methods introduced by Pinel."

In 1792 the conditions at the York Asylum, a charitable foundation was found to be such, that William Tuke at a meeting of the Society of Friends laid before it a proposition to establish an institution for the care of mental disorders, openly conducted, that is open for inspection, with no concealment, where patients should be treated with all kindness possible. Out of this proposition grew the York Retreat, still in existence at York, England. Tuke's reforms and those of Pinel were simultaneous. There is no evidence that Tuke had anything to do with reforms at Bethlehem, which did not take place until long after this date.

Neither did Daniel Hack Tuke or John Connolly (Conolly) advocate the "open-door" treatment of the insane without restraint, as stated on page 31. The non-restraint movement owes its real success to John Connolly. Hill and Charlesworth at the Lincoln Asylum had practically abolished the use of restraining apparatus in the care of their patients before Conolly was called to the medical superintendency of the Hanwell Asylum, a much larger institution, in 1839. To Charlesworth, visiting physician to the Lincoln Asylum and Hill, the resident medical man, are due however the first assertion in an asylum report of the principle of the entire abolition of mechanical restraint. (See Fourteenth Annual Report, Lincoln Asylum.) At Hanwell Conolly had to deal with a much larger number of patients, 800 as compared with 120 to 130 at Lincoln.

In his first annual report he was able to say, since the middle of August there has not been one female patient in restraint, and since September 21 not a male patient has been in restraint. Dr. Conolly remained at Hanwell for ten years and never had occasion to regret the abolition of all forms of restraining apparatus. His work entitled "The Treatment of the Insane without Mechanical Restraint" published in 1856 has become a medical classic.

Conolly's methods were only adopted outside of Great Britain, and to some extent at home, after much, and not infrequently bitter, criticism.

In Germany it was called the "English swindle" and in America, it was long after Conolly's death that it was put into practice.

Daniel Hack Tuke, a well known English psychiatrist and author some time Editor of *The Journal of Mental Science*, had nothing to do with Conolly's work though heartily supporting the principle of non-restraint. He was but 12 years of age when Conolly went to Hanwell and 22 when he retired therefrom.

The reader might infer from Dr. Wechsler's text that the non-restraint movement meant an open-door system, which of course it did not, and which neither Tuke nor Conolly advocated.

Beard, did not, as our author contends, introduce the term neurasthenia into this country, though he did much to make the term popular.

Dr. E. H. Van Deusen, superintendent of the Michigan State Asylum, Kalamazoo; published in his annual report for 1867-68, and subsequently in *THE AMERICAN JOURNAL OF INSANITY* for April, 1869, p. 445, an article entitled *Observations on a Form of Nervous Prostration (Neurasthenia), culminating in Insanity.*" In this article, p. 449, he says, "As to the term *neurasthenia*, it is an old term taken from the medical vocabulary and used simply because it seemed more nearly than any other to express the character of the disorder."

Van Deusen's paper gives a much better description of the symptoms he proposed to group under the term "neurasthenia" than did Beard's. Beard grouped a large number of unrelated "symptoms" from "tenderness of the scalp" to "coccydynia," "heaviness of the loins and limbs" and "podalgia," in his work published in 1880, "A Practical Treatise on Nervous Exhaustion, (Neurasthenia); Its Symptoms, Nature, Sequences, Treatment" (See review by the writer of this notice, *AM. JNL. INSANITY*, Vol. xxxvi, 4, April, 1880).

It will appear, we suspect, to any one who reads this notice that an amount of attention as well as space has been devoted to the chapter on the history of psychiatry wholly out of proportion to its importance when compared with the remaining chapters of the book. The writer has however so frequently had occasion to correct some of the errors into which Dr. Wechsler has been led that he has taken this occasion to again call attention to them in print.

It is a much pleasanter task to pass to the other sections of the book, and to commend them as well worth careful reading. It is not always possible to give full assent to the author's statements, or to accept his conclusions. The

very standpoint taken by Dr. Weschler when he announced, his belief that psychopathology offers the best understanding of the neuroses will be debated by some. So also will the author's strict adherence to psychoanalysis. These differences are to be expected, there would be little progress in science, if there were no debate, no difference of opinion and method.

Before dismissing the Introduction one would call attention to the author's statements that much depends on the intellectual integrity of the observer and the reliability of his observations. He also calls attention to certain weaknesses pointed out by Bernard Hart, notably the "interpretation" and that "inference" too often takes the place of "evidence."

The dangers which in our mind confront psychoanalysis relate to these and to the assumption on the part of untrained lay men and women of the methods of the psychoanalyst.

Psychoanalysis has become altogether too much popularized. Too many books intended for lay readers either directly or by implication treat upon the subject, too many persons seek psychoanalytic treatment who are wholly unsuited to receive it, and at the hands of persons equally unsuited to administer it. We are aware that Freud has written in favor of psychoanalytic practice by laymen, but nevertheless we feel that such practice cannot be too strongly deprecated.

As has been stated the author's methods are psychoanalytic, and once one admits the validity of his claims, one must perforce accept the correctness of his methods.

We have, we believe, consistently given an impartial and unbiased hearing of the advocates of psychoanalysis; we have recognized, we believe, some, at least, of its good points, but when a book is presented upon the neuroses and their treatment, by a trained neurologist, one versed in the anatomy and physiology of the nervous system, in which other methods are put down as of no value, or at least of so little value, as to be negligible, we are compelled to ask must we throw aside all that neurology and psychiatry has taught us in the past, and either become ourselves, if possible, psychoanalytic practitioners, or decline to treat patients of the type which in the past have, we believe, been guided to a recovery as complete and as permanent as any we have yet to see from the methods advocated by Dr. Wechsler.

The author has produced a book which is based upon personal experience and which recites methods followed and results obtained.

The book is, as we have said, well worth reading, but to the student or practitioner in search of methods which he can apply it is bound to be disappointing.

E. N. B.

The Recovery of Myself. A Patient's Experience in a Hospital for Mental Illness. By MARIAN KING, with a Preface by ADOLF MEYER. (New Haven: Yale University Press, London: Humphrey Milford, Oxford University Press, 1931.)

In the preface Dr. Meyer characterizes this little book as "A frank, simple and whole-hearted account of a patient's experience in a friendly

hospital—anyone familiar with the lack of sound information concerning hospitals for personality and mental problems must welcome it."

Dr. Meyer further says: "For years there has been a salutary movement aiming to relieve the mentally afflicted of hardships inherent to the conditions of a tradition-ridden civilization. Better understanding, tolerance, and a leading note of helpfulness are urged and practiced, and it is well that what this means should be described not only by the reformer but also by sufferers. It may be that in many ways even the mental diseases have changed somewhat through such improvements, but naturally not fundamentally. There is still need of treatment even against the patient's sick will; there is a need of guarding against harm to himself or others, for a by no means negligible percentage of patients. . . . Mental diseases still take time and cause prolonged invaliding and necessitate steps and precautions which, unfortunately, are superficially similar to those used in prisons. . . . The means of safety for the protection of the patient are being disguised, but the prejudices linger. . . . The prejudices cause distinction between 'insane asylums' and hospitals, frequently with invidious comparisons, and we still hear some leaders talk of stigma and the need of 'special hospitals' to keep patients out of 'asylums.' Will they ever realize that this solicitude only renews and perpetuates the wrong distinctions?" Long ago the present reviewer called attention to the futility of giving names to places where mental disorders are treated with the hope of concealing the nature of the establishment and of the maladies treated therein.

He vividly recalls the questioning by a woman who he thought was simply seeking information as to the meaning of a word in this instance, psychopathic. With some patience and detail the meaning of the term was explained when to his disgust she exclaimed "I knew all along that Mrs. — was crazy, and after all their attempts at secrecy it turns out they have taken her to a lunatic asylum, under another name."

We have put a taboo upon some of these terms. Lunatic, crazy, asylum, and even insane, are seldom used or heard, but the new terms have the same connotations and the prospective patient may find himself just as much the victim of ill-judged, if well-meant, deception, when taken to a psychopathic hospital, for example, as he would have in other days, when, as we have witnessed in numerous instances, he was told he was going to a health cure or a summer resort.

When, as always seemed the best course by those who were to be intrusted with patient's care and who needed above all things his cooperation and confidence, the whole situation was explained as clearly and yet as gently as possible, the patient in the majority of instances accepted the situation, the acceptance only being modified by his still lingering resentment at the deception.

Miss King appears in some measure to have been one of those who were deceived, or at least who did not have the advantage, and we use the term advisedly, of a frank explanation of the situation and its necessities.

Instead of being told she was to be taken to a hospital for nervous and mental maladies, she was rudely awakened to the situation after her ad-

mission by a pert fellow patient who informs her she is in a "bug house" among "nuts"; such is the language which the comic strip and newspaper reporters have taught the unthinking. Miss King had the misfortune of experimenting with a drug, mainly for the purpose of getting sleep. The experiment nearly terminated fatally and resort to hospital care was found necessary. Her account of her experiences is well told and can but be helpful to others in similar situations or to their friends. One comes to see how she is led to realize the situations which led up to her resort to artificial aids, and as the story grows rejoices at the insight which comes with discipline, a regulated life and wise counsel. We hope that the success of the writer's attempt to describe the personal and material things which led to her recovery as well as the methods pursued, will not encourage others to attempt a description of their hospital experiences under some such titles as "How my Appendix Came Out," "The Story of a Misplaced Heart," "The Essentials of an Organ Recital," or others we might suggest; for few would do the thing as well and as tactfully as has Miss King. We congratulate her upon the entire absence of anything "sensational" any tendency to write what the newspapers call a "human interest" story. Any one with a less clear appreciation of the real value for others of what she had to tell, might have easily yielded to such temptation.

She had the usual experience of patients in any hospital of falling in with nurses who talked too much about others, with visitors who exhibited the deplorable tendency to concealment of matters which might much better be subject to open discussion, and of patients who are unfortunately some times a thorn in the flesh to others.

Very properly the author does not reveal the name or locality of the hospital whose methods she so graphically and appreciatively describes, but to the reviewer the book possesses a peculiar interest because of an easy recognition of the surroundings or scene of the story such as ward V or III, the Club, and its clock, the Library, the skating pond and the tennis courts, some of which he was to some degree active in bringing into existence.

E. N. B.



Faithfully your friend
C. B. Brown

In Memoriam.

DR. C. B. BURR.

Once more we are called upon to record the loss of one universally beloved and admired, whose departure from earthly life will be long and deeply mourned.

Dr. C. B. Burr who died at his home in Flint, Michigan, on April 11, left to the world a record of distinguished service and of many honors conferred upon him by his life-long associates and admirers. He was in his 75th year, and his career was a notably successful one from every point of view.

It is understood that on April 9, Dr. Burr was attending a meeting where capital punishment was under discussion and that while he was taking part in the discussion, a cerebral embolism occurred. After this he was not fully conscious, his strength gradually failed and life ebbed away on the morning of the 11th.

On learning how death had taken him, one might say in the words of the poet lamenting the death of Sir Philip Sidney:

"I did not know that thou wert dead before,
I did not feel the loss I did sustain—
A sudden stroke astonishes the more.
Astonishment takes from us sense of pain.
I stood amazed, when other's tears begun,
And first began to weep, when they were done."

Philosophers tell us no man's life-story should be told until he is dead; only then can a final verdict be rendered; but our colleague's renown was firmly established long before the final event, and death only brought consummation of his fame.

We may recount the events of his life, his varied achievements, the positions he filled with so much honor, the valuable books and papers he wrote—but only those who came in close association with his life could know his rare qualities of head and heart; the travail of soul with which he "coveted earnestly the best gifts"; his considerate kindness to all his patients. His wide knowledge and keen processes of thought, his sterling worth of character, his

gifts of speech, enlivened as they were by sallies of wit and humor, quaint anecdote, pleasant allusions, apt citations. It was always interesting to be in his company.

Dr. Burr was born in Lansing, Michigan, on November 3, 1856. He received his academic education in Lansing and began his medical studies there. Later, he entered the College of Physicians and Surgeons in New York and graduated there in 1878. In the same year he began his psychiatric career in the Eastern Michigan State Hospital at Pontiac, as assistant physician. Later, he became assistant superintendent and rose to the medical superintendency in 1889. As superintendent he gave five years of brilliant service; keeping the institution in the front rank by his able and assiduous devotion to scientific progress and the welfare of his patients.

Dr. Burr was called to the medical directorship of the Oak Grove private hospital at Flint in 1894. He accepted this call to a narrower, but in some ways more attractive, field and here for 26 years he dedicated himself to a career at once scientific and philanthropic, bringing the hospital to the highest rank among similar institutions in quality of service and completeness of equipment; giving himself unreservedly to the care and cure of sufferers from nervous and mental maladies who came from all parts of the United States. To the thousands who during this long period sought his ministrations he devoted unrivalled resourcefulness.

The hospital occupied a rarely attractive situation, 56 acres beautifully diversified and largely covered with a growth of splendid old oak trees. The charm and delight of this sylvan scene was in itself a healing influence to those who came under its spell. The location was secluded and yet accessible, an ideal domain of shaded lawns with flower-gardens and shrubbery-beds and groups of well-designed and handsome buildings, well adapted to their various purposes.

There was but one unfortunate circumstance in the location and this was the fact that the bustling manufacturing city of Flint, with its great automobile factories, grew and expanded until it completely surrounded Oak Grove. The march of civilization and the need of the city for more and larger schools led to the purchase of these beautiful acres and the discontinuance of the hospital in 1920. One can but regret the loss to those who otherwise might have found help and healing there.

The oak grove today serves a useful purpose as the campus of two great educational institutions—the Central High School and Whittier College.

In 1920 when this transformation of Oak Grove occurred, Dr. Burr retired from active practice to a well-earned leisure.

All through his institutional life he had been busy with records and descriptions of his medical cases. So numerous and various were the papers he had written and had delivered at scientific meetings that their titles alone occupy a page and a half of the "Semi-centennial Volume of the American Neurological Association."

In his efforts for improving the quality of mental nursing, Dr. Burr prepared a text book for nurses entitled "Practical Psychology and Psychiatry." This work, first published in 1898 by F. A. Davis, in Philadelphia, met with such favor that up to 1921 it had passed through five printings. A sixth edition was brought out in 1930.

During the last two or three years Dr. Burr was occupied with a work of high importance; namely, "The Medical History of Michigan," two volumes, 940 pages. The history was published by the Michigan State Medical Society in 1930, printed by the Bruce Publishing Company, St. Paul and Minneapolis.

The history begins with the times of the earliest adventurers and explorers: the Indians and the Jesuit Priests of the 17th century; continues with the period of the British occupation and the Revolutionary War in the 18th; relates the phenomenal progress of the 19th and reaches the present day: the third decade of the 20th century. It is an unbelievably full and accurate account of the medical and surgical developments in the State of Michigan and incidentally of the Midwest.

Among the outstanding achievements recorded, is that of William Beaumont, the U. S. army surgeon, stationed at Fort Mackinac in the 1820's, who had charge of a Canadian *voyageur* shot through the stomach. This man recovered from his wound with a permanent opening or fistula leading directly into the stomach through which Beaumont was able to look, and to study the process of digestion—something that in the history of medicine had never been done before. This happy accident, together with Beaumont's genius, indomitable persistence and scientific record of his observations, placed his name by the side of medicine's greatest heroes.

Another honor was in store for Dr. Burr. The University of Michigan in September, 1930, taking cognizance of his attainments, inaugurated the granting of an honorary degree at the autumn convocation of the medical school. It was the school's 81st anniversary. Dr. Burr was the first recipient of this honor. He was introduced by President Ruthven as, "speaker, physician, writer and historian." Dr. Burr, replying to President Ruthven and addressing the class, offered a most felicitous response. At the close of his address Prof. John G. Winter, head of the Latin Department, presented Dr. Burr for the honorary degree of "Master of Arts" which was thus accorded.

When the Medical History was published, such was the enthusiasm felt by the medical profession over the completion of the book, that a special gala meeting and dinner, with Dr. Burr as guest of honor, was called and given by the State Society at Benton Harbor, Michigan, on September 16, 1930; more than 50 colleagues attended the fiesta. In his response at the dinner to Dr. B. R. Corbus, chairman, offering congratulations; Dr. Burr called this "the happiest moment and the biggest event of his life."

One of Dr. Burr's outstanding gifts was his command of language both in speaking and writing. He was able to put his ideas in fitting and cogent words with fluency and clearness. His opinions were positive, whether in medicine, politics or current topics. Not only so, but the play of wit and humor often entered into his ready and pregnant speech. To be in correspondence with him was a pleasure. His letters were full of entertaining figures of speech, tropes and similes. In his talk, both the King's English and foreign tongues—even brogue and slang (apt, but never offensive)—were at his command. On the Eighteenth Amendment his views were unmistakable. He favored repeal, revision or referendum.

To enumerate the various civic societies and associations in which Dr. Burr held membership and important office, transcends our space. In the Masonic Order he held the 32d degree, as well as many other degrees in other chapters.

In the medical field, he was a member of the State Society of Michigan and had been its president. He was a member of numerous local and county medical societies. In both the American Neuro-

logical Association and The American Psychiatric Association, he was an influential member. In The American Psychiatric Association, he held the trusted and laborious position of Secretary and Treasurer from 1897 to 1904 and published the annual volumes of "Transactions." He was President in 1905-6, and as his presidential offering on that occasion, he delivered a most finished and interesting address entitled "The Physician as a Character in Fiction," which called forth universal admiration. He was a member of the American Medical Association, a Fellow of the American College of Surgeons. He was a member of the city clubs of Detroit and Flint. Few men in any station have enjoyed more various lasting and honorable friendships. His sympathies were broad. He found, wherever he went, persons and objects which enlisted kindly and humorous interest. He delighted in philosophical speculation and the exercise of fancy over abstruse subjects.

Dr. Burr was first married on January 28, 1880. His first wife died on March 17, 1888, shortly after the birth of a daughter, Ernestine, who was born February 29, 1888, and died on January 12, 1914. His second marriage occurred October 28, 1890. Mrs. Burr survives her husband.

In 1909 Dr. Burr went to Munich and attended the famous Clinic of Kraepelin; also visiting Vienna and the clinics of the *Allgemeines Krankenhaus*. He traveled much in the United States, visiting California, camping with medical friends in the High Sierras, "hiking" on Mt. Wilson and Mt. Lowe of the Sierra Madre Range and camping on Catalina Island.

The day of his obsequies was memorable. It brought together a concourse from many parts of Michigan and from other states. His former rector, Dr. John Dysart, came to officiate at the funeral services. The president of the State Medical Society and numerous members were present. The Knights Templar sent a guard of honor. The bank was closed and eight pall-bearers from its staff were in attendance.

Thus, we bid a sad farewell to one who will still be with us in many memories, both mournful and felicitous, whose character and achievements are a treasured heritage.

RICHARD DEWEY.

CONSTANTIN VON MONAKOW.

On October 19, 1930, Constantin von Monakow died in his 77th year. He was born November 4, 1853, in Bobrezow, North Russia. His father, a high official in the Russian Government, had to emigrate with his family on account of his liberal views. They went first to Dresden, where Constantin von Monakow was sent to a private school at the age of 10. Two years later they moved to Zurich where the family settled permanently. There the young von Monakow received his preliminary and medical education. Already during his student years he worked under Hitzig in Burg-hölzli. After completion of his medical studies he went to study under Gudden in Munich and later became assistant in the Cantonal Psychiatric Hospital, St. Pirminsberg in St. Gallen. During the seven years spent there, from 1877 to 1884, von Monakow laid down the foundation for his now famous Cerebral Localization with his studies on secondary degenerations.

In 1885 he became privat-docent at the University of Zurich where he continued his anatomical researches in collaboration with Klebs. In 1891 he opened his private clinic and also organized his own private laboratory, from which a number of now famous anatomical preparations have originated. In 1895 he was named Professor Extraordinary in Neurology at the University of Zurich. In the following year the first edition of his *Gehirnpathologie* was published. In 1901 his laboratory was recognized by the State and became officially known as the Institute, remaining however, as his own private enterprise until 1912, when the Institute was incorporated into the medical faculty of the university.

It is a difficult task to go into details of the unusual amount of work and into the epoch-making contributions in neuro-anatomy and neuro-physiology made by von Monakow. Among his earliest and most important contributions there are: the secondary degeneration of the thalamic nuclei in rabbits and dogs following cortical excisions; the degeneration of the primary optic centres following the enucleation of the eyeballs; the secondary degeneration of the external geniculate body following the destruction of the calcarine area; and the secondary degeneration of Deiter's nuclei following hemisection of the spinal cord. These are only a few of the most important contributions which served as a foundation for the Cere-

bral Localization. In 1902 he developed his concept of diaschisis. In 1906 he brought out the *Arbeiten aus dem Hirnanatomischen Institut* in Zurich which ran uninterruptedly until the World War when it was changed to the *Archives Suisse de Neurologie et Psychiatrie*. During the first years of the war von Monakow retired temporarily and engrossed himself in the study of the great philosophers and psychologists. These years of abstract meditation seem to have affected his further conception of neurology and psychiatry as may be seen from his publications "Gefühl, Gesittung, und Gehirn" and "Psychiatrie und Biologie, Versuch einer Biologie der Instinktwelt."

To sum up his life work one may say that he created a living morphology and opened the gates to neuro-biology. He created with his conception of "Horme" a philosophic foundation for neuro-psychiatry. More will be said about this in the review of his last work. His pupils were numerous, they came to him from every continent and every country of the world. The name of von Monakow became synonymous with the modern conception of neuro-anatomy and neuro-physiology.

JOHN NOTKIN.